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"There's nothing, situate under heaven's eye, but hath its bound."

SHAKSPEARE.

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ERRATA.

Page 24, line 14 from top, *for* "PUNCTIFRONS, Fall.," *read* "TORNELLA, Zett."
„ 25, „ 16 „ bottom, *for* "Fieb." *read* "Fab."
„ 44, „ 26 „ top, *for* "Correspondingblatt" *read* "Correspondenzblatt."
„ 46, „ 2 „ bottom, *for* "including" *read* "excluding."
„ 226, last two lines, and page 227, first line, should be as follows:—"*P. albipennis*, Thomson, *l. c.*, p. 399, 7, ♀ = *Encoila tomentosa*, Giraud."
„ 239, above "SECTION A." put "DELTOCEPHALUS, Burm."
„ 240, last line, *for* "concave" *read* "convex."

THE

Entomologist's Monthly Magazine

VOLUME XII.

NOTES ON THE ENTOMOLOGY OF KERGUELEN'S ISLAND.

BY THE REV. A. E. EATON, M.A.

[*Extracted from the First Report of the Naturalist attached to the Transit-of-Venus Expedition to Kerguelen's Island. Published in the Proceedings of the Royal Society, vol.* xxiii, *pp.* 354–355.]

The entomology of the Island is very interesting. Most of the larger insects seem to be incapable of flight. I have found representatives of the Orders *Lepidoptera*, *Diptera*, *Coleoptera*, and *Collembola*.

The *Lepidoptera* comprise a species of the *Noctuina* (as I suppose) and one of the *Tineina*. Of the first, I have not yet reared the imago; the larva is a moss-eater and subterranean; the adult is probably as large as an *Agrotis* of medium size. The species of *Tineina* is probably one of the *Gelechiidæ*, judging from the form of the palpi. Its larva feeds on young shoots of *Festucæ*, and sometimes spins a silken cocoon for the pupa. The imago, of which the sexes are alike, has acute and very abbreviated wings, and the posterior pair extremely minute. In repose, the antennæ are widely separated and almost divaricate. When the sun shines the adult is active, and, if alarmed, jumps to a distance of two or three inches at a time. During its passage through the air the wings are vibrated.

The *Diptera* are represented by species of the *Tipulidæ* and *Muscidæ*. There are three of the former family. One of them is a species of *Cecidomyiidæ*, which is abundant in mossy places, and presents no marked peculiarity. Another seems to be a degraded member of the *Tipulidæ*. The antennæ have six joints, the palpi two; the wings are ligulate and very minute. It possesses halteres, and the female has an ovipositor enclosed in an exposed sheath. Although it is unable to fly, it lives upon rocks in the sea which are covered at high water, and there it deposits its eggs in tufts of *Enteromorpha*. The third species has full-sized wings; it was caught in the house. The indigenous

Muscidæ are very sluggish in their movements, and are incapable of flight. Four species are common. One of them is abundant on *Pringlea*, crawling over the leaves. When it is approached, it feigns to be dead, and, tucking up its legs, drops down into the axils of the leaves; or, if it happens to be upon a plane surface, one need only look at it closely, and it throws itself promptly upon its back and remains motionless until the threatened danger is over, when it gradually ventures to move its limbs and struggle to regain its footing. Its wings are represented by minute gemmules, and it possesses halteres. The ovipositor is extended, its apical joint alone being retracted. The larva feeds upon decaying vegetable matter. Another species occurs on dead birds and mammals, as well as beneath stones near the highest tide-mark. It is completely destitute of even the vestiges of wings and halteres. It and the preceding species are rather smooth. A third species, slightly hairy, is common amongst tide-refuse and on the adjacent rocks, which are coated with *Enteromorpha*, on which plant, *inter alia*, the larva feeds. It has very small triangular rudiments of wings, slightly emarginate near the apex of the costa, and possesses halteres. The fourth species occurs amongst grass growing on the sea-shore and also in Shag-rookeries. Its linear and very narrow wings are almost as long as the abdomen. It can jump, but cannot fly.

A *Pulex* is parasitic upon *Halidroma*, and one (possibly the same) on *Diomedea fuliginosa*.

Coleoptera are not uncommon. The larger species seem to have their elytra soldered together. There is a small species of the *Brachelytra*.

Several species of *Nirmidæ* have been obtained.

Two *Poduræ* (one black, the other white) are plentiful.

There appear to be few species of spiders, though individuals are numerous. Penguins and some of the other birds are infested with ticks. The remaining *Arachnida* are related to *Cribates*.

NOTES ON JAPANESE *RHOPALOCERA*, WITH DESCRIPTION OF A NEW SPECIES.

BY THE REV. R. P. MURRAY, M.A.

Since the publication, in December and January last, of my paper on Japanese butterflies, I have become possessed of a little more material, and venture to lay the following additional notes before the readers of Ent. Mo. Mag.

Colias Hyale, L.—I now possess a single specimen of this insect from Japan. It does not appear to differ from European specimens of *C. Hyale*, except in its somewhat larger size; and I have no doubt that it belongs to that species. I believe, however, that it is the form described by De l'Orza as *C. Simoda*.

Pieris Melete, Mén.—This is a most variable species, and I have no doubt that a long series of specimens, collected at different seasons of the year, and from various localities, would prove most interesting. Some of the females are much darker than others. The insect varies much in size; the smallest ♂ in my cabinet expands 2″ 4‴, the largest (also a ♂) 3″.

Leucophasia amurensis, Mén.—Taken in September on "a dry mountain slope bare of trees," at the base of Fujiyama. This species is usually considered to be a variety of *L. sinapis*, L., but the very peculiar elongated wings seem to entitle it to specific rank.

Lycæna Argus, L.—Taken, I believe, in the same locality as the last mentioned species.

Danais Tytia, Gray.—The existence of this W. Himalayan species in Japan (previously noticed by Motschoulsky) is very curious. *Papilio Agestor*, Gray, which so closely mimics it in its Indian home, has not yet, so far as I know, been detected in Japan.

Lethe, Hübn.—I fear that this genus will for some time prove a stumbling block to Japanese lepidopterists As far as I at present understand it, the Japanese species should stand as follows:—

L. Sicelis, Hew.—The males of this species may be distinguished by the tuft of long silky hair arising from near the extremity of the hind-wing cell.

L. Diana, Butler.—Male with long silky hair arising from the inner margin of fore-wing.

L. Whiteleyi, Butler.—The type in Brit. Mus., a male, is in a very worn condition. I possess two females, apparently referable to this species. If it were not that the type is, according to Mr. Butler, a male, I should have considered my specimens as females of *L. Diana*. They agree very fairly with Bremer's figure of *Las. Maacki*, except that the marginal spots on upper-side of hind-wing are obsolete, or nearly so. This latter species is cited by Motschoulsky (Bull. de la Soc. Imp. de Moscou, 1866) as synonymous with his *Satyrus marginalis*, which is enumerated in Kirby's catalogue as doubtfully distinct from *L. Diana*, Butl.

Neope sp. nov.?—Three specimens of this species were sent home by Mr. Pryer, one of which is now in my possession. I believe it to be undescribed, but as my specimen is in very poor condition, I hardly like to describe it.

Vanessa xanthomelas, W. V., or *V. polychloros*, L.?—The Japanese specimens in the perfect state seem to agree best with *V. xanthomelas*, but I learn that the larva is an elm-feeder, herein agreeing with that of *V. polychloros*. Species of *Salix*, to which, in Europe, *V. xanthomelas* is supposed to confine itself, are numerous in Japan. A Himalayan example in my collection, referred by Mr. Moore to *V. xanthomelas*, seems to me much more like *V. polychloros*. I am very doubtful whether the two species be really distinct.

Ismene Benjamini, Guér., *var. japonica*, Mihi.—Differs from Indian examples in wanting the dark shade which suffuses all the outer portion of the fore-wings in typical examples.

Pamphila Sylvanus, Esp.—Japanese specimens attain a much larger size than European. The largest in my collection expands 1″ 9‴.

PAMPHILA FLAVA, *sp. n.*—*Alis suprà brunneis, flavo-notatis : subtus pallidioribus, posticis flavis, brunneo-maculatis. Antennis hamatis.*

Hab. : *Japonia.* *Exp. alar.*, 1″ 2‴—1″ 4‴.

Upper-side. Fore-wings dark brown : base dusted with yellow : costal, inner-marginal and median yellow streaks from the base, the latter expanding into a rather large yellow spot at the end of cell, above which are two yellow dashes, bordering the first sub-costal nervule. Beyond the middle is a conspicuous yellow band, divided into spots by the veins : the fourth and fifth are displaced, as in the allied species, and situated much nearer the hind-margin. Hind-wing : dark brown : a yellow spot near base, and a smaller one above it, near the costa : a conspicuous yellow band beyond the middle, reaching from sub-median to sub-costal nervures. The small costal spot before mentioned may be considered as an upward continuation of this band. The brown portions of both wings are more or less dusted with yellow. Fringe yellow, cut with fuscous, especially on fore-wing.

Under-side. Fore-wing : paler than above : only the costal streak from base present, which reaches to the sub-costal dashes corresponding to those existing on the upper surface : discoidal nervule bordered, often broadly, with ochreous, along the basal half of its course : apical portion of hind-margin ochreous. Hind-wing : brown, thickly dusted with ochreous except at anal angle, where is a large brown patch, extending in a narrow streak to the base. Spots as above, but with an additional basal spot above the cell. The transverse band is bounded outwardly by a more or less distinct zigzag brown line.

Allied to *P. Augias*, L.

This is the species referred to in my former paper as *P. Dara* (?), Koll. Further investigation has convinced me that it is distinct ; nor can I find it described by any other author. It seems to be a common species near Yokohama.

Beckenham : *May*, 1875.

NATURAL HISTORY OF *LARENTIA RUFICINCTATA*, GN., AND *L. CÆSIATA*, W. V.

BY THE REV. J. HELLINS, M.A.

I was very glad to receive eggs of *ruficinctata* last August from Mr. Carrington, and in March, having failed to bring my larvæ through the winter, I was still more glad to have my loss made good by Mrs. Hutchinson; and I am now able to give a tolerably full account of this species, and to compare some of its stages with *cæsiata*. The result of this comparison will be to show that they stand very much in the same relation to one another as exists in the genus *Melanippe* between *rivata* and *subtristata*.

I received eggs of *ruficinctata* on August 15th; the larvæ hatched on 21st, and at first fed well on flowers of various stonecrops and saxifrages, but when the flowers were past, would not touch the leaves; however, Mrs. Hutchinson found that the leaves of *S. hypnoides* (a species I could not obtain) were readily eaten, and on that plant kept her larvæ through the winter, and on February 19th, she kindly sent me some of them, then just moulting for the last time; these spun up during the last week of March and the first ten days of April, and the first moth came out yesterday, May 17th; from the moths of this first flight the larvæ are found full-fed (and have been sent to Mr. Buckler) in July; and the second flight of moths is out at the beginning of August: *ruficinctata* therefore is double brooded, one brood going through all its transformations in the period between the middle of May and the beginning of August, and the other taking up the rest of the twelve months, chiefly in the larval stage.

The egg is rather long-oval in outline, full, with one end blunted; the shell pitted all over with irregular reticulation; the colour (when I received the eggs from Mr. Carrington) light bright red; afterwards dingy; the young larva is pale olive, with broad dorsal and finer waved sub-dorsal darker lines; head shining black, the blackish dots each set with a long bristle somewhat clubbed at the tip: in about a month (with the second brood, that is) the dorsal pattern begins to appear, the colour otherwise being dark brownish: the larvæ that came to me in spring were about half grown, with the dorsal pattern well developed. The full grown larva is six-eighths of an inch long, in figure thick set, tapering from the fifth segment to head, which is small and rounded, and tapering, but not so much, from the tenth to tail; when viewed sideways rather flattened; divisions well marked; skin wrinkly; the usual dots distinct as minute raised warts with longish hairs. In colour there are three varieties known to me:

A. Ground colour on back dark purplish-grey, with a dorsal row of seven Λs pointing forwards on segments 5–11, and sometimes an eighth and ninth Λ—but small and imperfect—on segments 4 and 3; these marks are outlined by very dark velvety brown lines, and of the space enclosed by them the apex is pale yellow, and the base pale rose-red, the dorsal line appearing here as a short stripe of deeper opaque red; on segments 2, 3, 12, and 13, the dorsal line is continuous and dark reddish; the head darker than the ground, and freckled; the belly dull reddish-brown; the spiracular region tinged with ochreous; the small round spiracles blackish.

B. Ground colour rather subdued green, with the dorsal markings rather brighter than in A; the head freckled with brownish; belly pale green; spiracular line ochreous.

C. Ground colour pale olive-green, but varied with a suffusion of dark rich red on either side of the back, most intense where it touches the pale yellowish spiracular line; the belly dull greenish.

The pupa, enclosed in a very slight cocoon on the surface of the soil, is barely half-inch long, smooth and cylindrical, tapering off gradually to the tail, which ends in a spike with a fine forked spine; the skin very glossy; the colour pale golden-brown, darker towards the tail.

Some years ago I reared *cæsiata* from the egg, but preserved no record of the egg, or young larva; at that time I bred the moths in the end of May and beginning of June, but I do not know for certain whether this shows there are two broods, or only that the moth has a long flight; Mr. J. Batty, who has more than once sent me the larvæ, tells me he believes there is but one brood of moths, most abundant in July; anyhow, from these the larvæ are hatched in August, feed chiefly on whortleberry, but will also eat ling, hibernate, and do not feed up till May, some even holding on till June.

The larva when full grown is seven-eighths of an inch long, not so stumpy to look at as *ruficinctata*, more cylindrical, tapering less rapidly to the head, which, however, is small and rounded; the bristles emitted by the dots shorter than in *ruficinctata*. In colour there are two varieties known to me:

A. Ground colour on back deep red-chocolate; a dorsal row of seven Λs pointing forward on segments 5–11, with imperfect ones on 4 and 12, much resembling those of *ruficinctata*, being outlined with dark brown, and the interior being also yellow in front and pink behind, but they are both more extensive in size, and brighter in tint; the segmental divisions are tinged with green; the dorsal line is almost continuous, but varying in colour, being brownish-

red or more pinkish, in agreement with the surrounding skin; at the segmental divisions it is bordered by two short whitish dashes, as are also two pairs of fine lines which run on either side of it, so that at the divisions there is quite a marked feature in these white dashes; the spiracular line is clear and distinct, in colour white or pale yellow; the spiracles are black; the head dark reddish, freckled with greenish; the belly dark brown.

B. Ground colour a deep bright green, dorsal markings very bright by contrast; head as before; belly full green; spiracular line white, or pale yellow; anal flap and anal legs purplish. This is a very beautiful form of the larva, and seems to be developed at the last moult; an example now feeding was quite reddish-brown till it moulted.

The pupa, enclosed in a slight cocoon, but apparently more complete than that of *ruficinctata*, is about half-inch long, cylindrical, and rather slender; the eyes rather prominent; the skin very glossy; in colour almost olive on the wings; golden on the abdomen; the eyes, abdominal rings, and end of tail dark brown. I should much like to hear some decisive statements on the question of this species being single or double brooded.

Exeter: 18*th May*, 1875.

NOTES ON BRITISH *TORTRICES*.

BY C. G. BARRETT.

(*continued from Vol.* xi, *p.* 196).

STIGMONOTA NITIDANA, Fab., and WEIRANA, Dougl.—I feel now in a position to give a decided opinion as to the distinctness of these two species. My friend, M. E. L. Ragonot, has been able to rear both species at Paris, and has, with his usual kindness, communicated specimens, and information on both, to me. In his specimens of *Weirana*, the markings, which are faintly visible in some few of our native specimens, become comparatively bright and distinct, and form excellent distinguishing characters.

In *nitidana* the pale fascia beyond the basal patch is elbowed *above the fold*, consequently its angle is nearer to the costal than to the dorsal margin, and its *inferior* arm is the longer.

In *Weirana* the fascia is angulated *below* the middle of the wing, the angle is more obtuse, and its *superior* arm is the longer.

In *nitidana* the face is whitish, and the markings on the fore-wings bright and silvery.

In *Weirana* the face is pale grey, and the markings duller and more leaden.

In *nitidana* the hind-wings are pale at the base, becoming darker towards the hind-margin.

In *Weirana* they are entirely dark grey. In this species, also, the fore-wings are broader and more rounded than in *nitidana*, and it is altogether a larger, duller, and more smoky-looking species.

M. Ragonot writes me: "*Nitidana*, whether captured about oaks "or bred from the cocoons, is quite constant in colour and size, and is "smaller than *Weirana*, and narrower winged. *Weirana*, bred from "beech, is quite constant in size and colour, though some have more "distinct markings than others."

I think, therefore, that their distinctness is fully proved, and in this Prof. Zeller, after seeing M. Ragonot's specimens, concurs.

The specimens of *flexana* sent me by Zeller, although more brightly marked than even the Parisian specimens, are also clearly identical with *Weirana*, and it will therefore be necessary to adopt *flexana*, Z., as the name of this species, as it has one year's priority over *Weirana*, Dougl.

The climatal variation of this species is curious and very interesting, and deserves further investigation.

From Lord Walsingham I have received, for examination, a beautiful *Tortrix* belonging to this genus, but apparently distinct from any described species, and so well marked that I venture to describe it as a novelty.

STIGMONOTA ERECTANA, *sp. n.* Alar. exp., 4½ lines.—Head, palpi, and antennæ, dark brown, thorax olive-brown. Fore-wings rich dark brown, paler towards the base, and with a faint olive tinge. Markings silvery-white, consisting of a perpendicular dorsal blotch reaching two-thirds across the wing, immaculate, sharply defined interiorly, squared at the apex, and slightly toothed exteriorly, and four pairs of costal streaks, the second pair produced into a narrow angulated fascia beyond the dorsal blotch, and reaching the anal angle, the lower arm being nearly perpendicular to the margin, slightly dilated, and brilliantly white. Between this and the dorsal blotch is the almost invisible ocellus. There is a square pale spot in the cilia below the apex, the remainder of the cilia being grey with a dark line at the base.

Hind-wings very pale grey at the base, darker at the margin and on the nervures. Cilia white.

Of the size and form of *internana*, and similar in markings, except that the dorsal blotch is *erect*, and contains no dark lines.

Taken by the Hon. Beatrice de Grey among broom *(Spartium scoparium)* in Norfolk.

(To be continued).

DESCRIPTION OF A NEW SPECIES OF *NEMATUS* FROM CORSICA.

BY P. CAMERON, JUN.

Nematus Marshalli, *sp. n.*

N. nitidus, luteus, antennis longis, capite, ore excepto, meso- et metanoto, tarsisque posticis, nigris; alis fumatis, stigmate testaceo.

Long. fere 3 *lin.*

♀. Antennæ as long as the body, black, the 3rd and 4th joints equal. Head black, shining, covered very sparingly with down; pronotum luteous; tegulæ pale luteous. Abdomen almost shorter than the head and thorax, entirely luteous, except the basal segment, which is broadly black in the middle; the apex acuminate, hairy, the sheaths of the saw black. Feet pale luteous, the apices of the posterior femora (faintly) and tibiæ, as well as the tarsi, black; the posterior calcaria dark luteous moderately long; the tibiæ thickened at the end, and grooved inwardly. The posterior legs are longer than the body. Wings smoky, the nervures deep black; the costa and stigma testaceous. The 1st sub-marginal nervure is absent; the 2nd recurrent is received in front of the 2nd sub-marginal; the 3rd sub-marginal cell is much broader at the apex than at the base.

This insect is not unlike *Nematus fumipennis*, Ste. (*ventralis*, Htg., *nec* Pz.), but, not to mention other marks of distinction, that species has the wings much darker coloured, and the stigma is black at the base.

Taken in Corsica by the Rev. T. A. Marshall, after whom I have much pleasure in naming it.

136, West Graham Street, Glasgow:
February, 1875.

DESCRIPTION OF THREE NEW BUTTERFLIES.

BY W. C. HEWITSON, F.L.S.

Leptalis Medorina.

Upper-side: male, dark brown. Anterior wing crossed by two macular bands of yellow: the first of two spots at the middle, the second sub-apical of three spots. Posterior wing with the costal margin (except a polished spot of white) and a central band which is united with it yellow.

Under-side: yellow. Anterior wing with the central band of spots as above: the inner half polished and marked by a white spot. Posterior wing irrorated with brown and marked by eight or nine white spots.

Exp., $2\frac{1}{10}$ inch. Hab., Bolivia (Buckley).

In the collection of W. C. Hewitson.

Nearly allied to *L. Medora*, from which it differs on the upper-side by having the central band of the anterior wing broken: on the under-side by the white spots of the posterior wing.

Leptalis Hippotas.

Upper-side: male, black. Anterior wing with a small spot before the middle, a band of three spots, two of which are bifid at the middle, and a sub-apical band of three spots all white. Posterior wing with the costal margin (which is polished) and a band at the middle (ending near the middle of the outer margin in a separate triangular spot) white.

Under-side: lilac-grey irrorated with dark brown. Anterior wing with the white spots as above, the inner margin polished and marked by a white spot. Posterior wing tinted with yellow in the middle, and marked by several white spots: one of them near the costal margin, a central band of ten spots, and one below them.

Exp., $2\frac{3}{10}$ inch. Hab., Ecuador (Buckley).

In the collection of W. C. Hewitson.

Erebia Merula.

Upper-side: dark brown. Anterior wing with two black spots near the apex, one large (as if composed of three ocelli), and marked by three minute white spots placed in a triangle: the other spot (which is below it) small and marked by one minute white spot: the whole bordered by pale brown.

Under-side: as above.

Exp., 2 inches. Hab., New Zealand.

In the collection of Herman Strecker.

This species is in form more like *Argyrophenga* than it is to the European species of *Erebia*, amongst which it resembles most *E. Evias* and *E. Hewitsonii*. I am indebted to the kindness of Mr. Strecker of Pennysylvania for the pleasure of adding another species to the meagre list of New Zealand butterflies.

Oatlands, Weybridge,
April, 1874.

ON THE FONDNESS OF ANTS FOR CERTAIN *HOMOPTERA*.

BY PROFESSOR FEDERIGO DELPINO,
Of Vallombrosa, near Florence.

[*Translated from the Bullettino della Società Entomologica Italiana*, 1875, *pp.* 61–64.]

In 1873 in the garden at Paterno, near Vallombrosa, were two very robust plants of cardoon *(Cynara cardunculus)*, distant from one another about 40 steps. A little further, in another plot, were several plants of artichoke (*Cynara scolymus*).

Towards the middle of May, on examining the two plants of cardoon, I remarked on both of them a tolerable number of larvæ of

Tettigometra in various degrees of development, which were dwelling under the protection of a *Formica*, but not of *F. pubescens* (which I had previously* observed taking charge of *Tettigometra virescens*), but of a smaller species. The idea occurred to me to see if there were any similar larvæ on the artichoke plants, and, in fact, I found some there, but these were under the protection of a third species of ant, a *Myrmica*.

In June I revisited the cardoon plants. The *Tettigometræ* had considerably increased in numbers, and this time they were guarded by *Formica pubescens*, which had driven away the smaller species of *Formica*, which I had noticed there before. Again I noticed that the *Tettigometræ* were in various stages of development.

In July the larvæ of *Tettigometra* had increased in numbers more than ever, and were still under the protection of *Formica pubescens*. The protected individuals showing still in this month various degrees of development. This circumstance had led me in the previous year to the conjecture that like the *Aphides*, the *Tettigometræ* were capable of parthogenesis; but this conjecture was erroneous, since I observed this time scattered here and there on the cardoon plants some heaps of eggs of *Tettigometra*.

Towards the end of August, revisiting these plants, I was at once struck by several unexpected phenomena. Mixed along with the larvæ of the *Tettigometra*, which, as is well known, are green, there was a profusion of black larvæ, differing not only in colour, but also in form, and besides which, they were very sluggish, and with little or no power of leaping. Perfectly intermixed with the *Tettigometræ*, and living in the greatest harmony with them, these were also under the protection of *Formica pubescens*, to which they exuded from the anus from time to time a drop of saccharine liquid. My first impression was that I had here a singular instance of larval dimorphism; but, on more mature consideration, and after having duly reflected on the great difference in the form of the body and in their agility, I came to the conclusion that I had before me the larvæ of another species of *Cicadellina* enjoying, like the *Tettigometræ*, the same harmonious relations with the ants. I was not, however, able to ascertain with certainty to what genus these table-companions and allies of the *Tettigometræ* should be referred. But I noticed several times, and in both the cardoon plants, the presence of adult *Cicadellinæ*, winged, brown, and of comparatively large size. These had precisely the appearance and characters of the genus *Issus*, and were in all probability the parents of the black larvæ.

* Bullettino della Società Ent. Italiana, 1872, p. 343.

The flocks of cattle of these ants were thus not only increased in numbers but also in species. Another thing which somewhat surprised me, was that the ants, in order to be easily within reach to assist and defend their cattle, had excavated in several parts of the stalk and of the larger ribs of the leaf true guard-houses of an ingenious structure. Each had an opening sufficiently wide to admit the passage of the largest *Tettigometra*. This opening led to a gallery excavated in the pith of the stalk to the depth of four inches or more. Besides this main opening, there were hollowed out two or three very small holes, with what object I cannot say, but probably with the view of ventilating the domicile, a current of air passing from the larger opening to the smaller ones. The greater part of the *Tettigometræ* remained outside these shelters, but some had penetrated within and had also deposited eggs there.

The cardoon plants, strange as it may seem, which had been continuously punctured for months by the larvæ of *Tettigometra* and *Issus*, and which were also pricked and sucked by the ants, as I had several times observed, and which had long galleries excavated in the pith, were notwithstanding in a most vigorous state of vegetation and fruiting most copiously, thus showing that they suffered little or nothing from the presence of so many visitors.

The affection of the individuals of *Formica pubescens* for these colonies of *Tettigometra* and *Issus* is truly great. It was evidently with the intention of watching better over them that these habitations had been excavated. The lives of these cattle of theirs are exposed to the attacks of many enemies. I observed spiders, *Coccinellæ*, and ichneumons. I found one ichneumon of proportionate size, dead, with its abdomen torn, which had probably been the work of these guardians.

On the whole it would appear from these phenomena that in *Cynara cardunculus* and *C. scolymus*, which is probably only a variety induced by cultivation, we have a true species of European Formicarium, comparable to a certain point and analogous to the *Myrmecodium* and *Hydnophythum* of Asia, and to the *Tococa* and *Majeta* of America. One thing seems certain, that on a plant on which the ants have fixed their abode, caterpillars and other foes to vegetables cannot also occur. Hence we have here an example, unique as far as we know, of a "quadruple alliance" between four different beings, that is between *Cynara cardunculus*, *Tettigometra*, *Issus* and *Formica*.

May 12*th*, 1874.

Peronea Lipsiana, &c., at Witherslack.—On the 19th April, the weather being hot and fine, I paid a visit for a couple of days to my favourite hunting-grounds, in company with my friend Mr. Threlfall. *Polyommatus Argiolus* was plentiful on the hollies, and many *Gonepteryx rhamni*, both males and females, were flying about on the moss side; during the hot sunshine *Dasystoma salicella* flew briskly about, whilst *Micropteryx purpurella* and *unimaculella* were in fine condition amongst the birches. *Butalis incongruella* was started several times, but it seemed scarcer than usual; of *Peronea Lipsiana* we found two well-marked specimens, also two *Depressaria capreolella*, four *Gracilaria phasianipennella*; a few *Amphisa prodromana*, *Peronea mixtana*, *Cnephasia lepidana*, *Semioscopis avellanella* and *Steinkellneriana*, all had a fly in the hot morning sun. *Lobophora lobulata* was sticking on the trunks of the trees; *Eupithecia pumilata* was quite common and very fine. The rare Dipteron, *Empis borealis*, was hawking about after flies and moths, occasionally worrying one another; the local and rare *Tipula alpina* was in its favourite haunt on the rocks, and I pointed out the place to my young friend Mr. Threlfall, lest its habitat might be lost when I leave these hunting-grounds for the unknown ones.—J. B. Hodgkinson, 15, Spring Bank, Preston, Lancashire: *April 25th*, 1875.

Capture of Micropteryx salopiella, &c., at Witherslack.—I revisited Witherslack on the 2nd May; it was a bitterly cold day, and all I could obtain was a solitary *Micropteryx salopiella*. The next day there was a little sun, and I captured nine more: when fine it is a charming species. I did not meet with a single specimen of *M. Sparmannella*; I saw single specimens of several *Tortrices*, such as *Clepsis rusticana*, *Anchylopera unguicella*; and *Glyphipteryx Haworthana* was common amongst the cotton-grass, and I met with one fine *Gracilaria phasianipennella* (hibernated, I suppose). Several species of *Ornix*, *Nepticula*, and *Lithocolletis* were out, and I noticed some very young larvæ of *Pterophorus tephradactylus* on the golden-rod; I am told that the larva of this species feeds up in the autumn in the south of England.—Id.: *May 10th*, 1875.

The first white butterfly—which is it?—Many may be disposed to stare at such a simple question, but my reason for putting it is this:—Writing to Professor Zeller on the 23rd April, I happened to mention that I had seen *Pieris rapæ* on the wing in Scotland on the 16th, 18th, 19th, and 20th of April. In his reply came the observation, "I am struck with your remark that you have seen *Pieris rapæ* on the wing—with us the first butterfly which emerges from the pupa is *P. napi*, and it is not for two or three weeks later that *P. rapæ* makes its appearance. Perhaps you have written the wrong name, or is the matter reversed in Scotland? I begin, however, no longer to be surprised when I find that one's experience gained in one locality would prove false if applied to other situations."

My English readers will not be surprised to hear that I assured Professor Zeller "that, in England as well as in Scotland, *rapæ* always precedes *napi*—I should say, on an average, by ten or fourteen days." I confess I have not yet seen *napi* this year.—H. T. Stainton, Mountsfield, Lewisham, S.E.: *May 11th*, 1875.

Description of the larva, &c., of Rhodophæa suavella.—On May 27th, 1874, I

had the pleasure to receive several larvæ, which proved to be this species, found in Herefordshire by Dr. J. H. Wood, who also most kindly furnished me with many interesting particulars of their habits.

The *young* larvæ were detected on stunted sloe bushes, at first feeding on the leaves under a whitish web, and on becoming larger they constructed along the branches silken galleries more or less covered with their long narrow pellets of frass, neatly arranged side by side.

As they occurred on a sheep-walk, wool was found adhering to the bushes and sometimes to the webs of the larvæ, thus forming a rather tangled mass; faded remnants of leaves, silk, and wool being matted together, and amongst all this their galleries lay, making it difficult to trace them; not that the presence of wool seemed to be necessary, but was only worked through when the larva found it in their way, many of the galleries being quite free from wool.

The full grown larva, when stretched out, varies from a little over five-eighths to nearly six-eighths of an inch in length, cylindrical, slender, tapering but very little in front, though the head is a trifle less than the second segment, while from the eleventh to the anal extremity it tapers gradually; the head in outline is full and rounded, and its surface roughened; each segment beyond the fourth is sub-divided across the back by a deep wrinkle into two portions, the greater portion being in front, another wrinkle sub-divides the hinder portion, but only on the sides of the segments; the spiracular region is inflated and puckered; the ventral legs are much beneath the body.

The colour of the roughened head is dark brown, with the base of the papillæ and a transverse streak above the mouth brownish-grey, the surface glistening; the plate on the second segment and that on the anal tip are both black and shining, the rest in the young stage rather olive-brown, afterwards becoming deep chocolate-brown; the skin smooth but without gloss, the ventral legs semi-transparent, the anterior legs spotted with black; the ocellated spot on the side of the third and twelfth segments is brownish-grey with a black centre, the hair from it being longer than that which proceeds from each of the usual tubercular situations, but all the hairs are alike in being dark brown, fine, and pointed; the small circular spiracles are of the ground colour.

By the 19th of June the larvæ had spun themselves up amongst the twigs of sloe in greyish silken cocoons, one of which, on the 22nd of the month, I cut open, and found the pupa to be three-eighths of an inch in length, of moderate plumpness, thickest in the middle; the wing-cases long, the abdomen bluntly tipped and terminating with seven most minute bristles curved at their extremities: in colour it was a deep mahogany-brown, the abdominal divisions darker brown, the whole surface very glossy. Four moths were bred on July 19th and 20th.

Another fact in the economy of *suavella* remains to be mentioned, that it is not confined to sloe, but is also found on hawthorn bushes; Dr. Wood having taken some larvæ from them on a common, which were kept separate, and finally produced this species. He also noticed in the instance of two or three larvæ that had been disappointed in pupating, and were wandering about amongst the twigs of sloe, that they had become tinged with greenish, and wanted earth to make up in.—William Buckler, Emsworth: *May 13th*, 1875.

Probable discovery of the imago of Helicopsyche in Europe.—In vol. ii of this Magazine, p. 252 (April, 1866), Dr. Hagen announced that the imago of a Trichopterous insect, of which the larva manufactured the form of cases known as *Helicopsyche*, had been bred in North America, and gave figures and characters (the spur-formula was erroneously given as 2, 4, 4, it should have been 2, 2, 4). But no known European insect agreed generically with this, although *Helicopsyche* cases occur in the South of Europe. Very recently Prof. Costa, of Naples, forwarded to me a few *Trichoptera*, and among them is what I believe to be *Helicopsyche;* although the number and conditions of the individuals are not such as to enable me to make the dissections with the exactitude I could wish. It is a small, black, intensely pubescent insect, agreeing with the American species in palpi, spur-formula, &c., and, I think, also in neuration, though I am obliged to leave this somewhat uncertain for want of materials. Decidedly it belongs to no hitherto known European genus.—R. McLachlan, Lewisham: *April 5th*, 1875.

Capture of Tropistethus holosericeus at Riddlesdown.—On the 17th April I spent two or three hours in shaking the moss that grows under the juniper bushes at this place, but the only good species of *Heteroptera* I saw was *Tropistethus holosericeus*, Scholz, and of this but two examples, both of them mutilated. Indeed, such was the condition of nearly all of the few hibernated *Hemiptera* I found; this result, and former experience of hunting in winter-quarters in April, lead to the conviction that to obtain quantity and quality the search should not be delayed beyond March. The species is scarce, and the locality for it new.—J. W. Douglas, Lee: *April 27th*, 1875.

Capture of Ulopa decussata, ♀.—At the same time and place as the foregoing, among the small bits of earth resulting from the shaking of moss, I caught sight of a Homopterous form lying motionless on the paper. This at first I took to be the common *Paropia scanica*, and was inclined to throw it away, but the small size and dark colour (the latter exactly that of the earth on which the insect rested) induced me to inspect the creature closely, and by the rounded form of the head I then saw I had made the acquaintance of a stranger. Mr. Scott says it is *Ulopa decussata*, Germ., and I believe he is correct. Fieber puts this as the ♀ of *U. trivia*, Germ., of which only a single British example, in the collection of Mr. Dale, is known (E. M. M., vii, 272).—Id.

Notes on Mr. Scudder's "Historical Sketch of the Generic names proposed for Butterflies."—Mr. Scudder has kindly sent me the above valuable contribution to the Study of Nomenclature, and I think all entomologists must agree that, as regards the painstaking manner in which the subject is treated, it does him infinite credit; but, at the same time, I feel satisfied that he will not be altogether followed; I should, personally, be disinclined to agree with him in every point, for the following reasons:—

1st.—I am sure that at the outset Mr. Scudder has made a great mistake in being guided in his choice of types by the purely fanciful or accidental restrictions of genera subsequent to their institution. To put an extreme case, we will suppose that A describes a genus in the Linnean sense (that is, containing many genera); a

short time afterwards, B publishes a list of species collected by himself during a summer trip, among them he mentions a species originally quoted amongst the representatives of A's genus; according to Mr. Scudder, B thus accidentally fixes the type of A's genus, and becomes famous; this may sound like nonsense, but substitute catalogue list for collector's list, and this is precisely what Mr. Scudder has done.* I can see no reason why, in a question of types, the restrictive system should not be thorough, therefore I think Mr. Scudder should look up all the entomological pamphlets and serials issued since the time of Linnæus, and see if he cannot find an earlier restriction of such groups as *Papilio*, *Pieris*, or *Hesperia*. I feel quite hopeful of his success.

2nd.—I regret to have to say it, but Mr. Scudder is not quite consistent; he objects to one genus on the ground of its not having been characterized (see p. 250), whilst he sinks another because its type has previously had an uncharactized generic name applied to it (*Anchyphlebia* for instance); he, moreover, occasionally rejects a genus for another reason, the case being as follows:—A describes a genus in which he places three or four species; B describes the same genus with one or two additional species, and under another name; C sinks B's genus very properly as a synonym of A's; D finds that B's genus contained heterogeneous material, and founds a new genus for one or two of the species included in B's group: in comes Mr. Scudder at this point, and upsets D's genus as a synonym of B's† (as examples, see *Callitæra*, *Herpænia*, and *Nychitona*).

Mr. Scudder departs from his own rule in the case of *Pieris*, for in 1805, as he himself shows, this genus was restricted, and *P. rapæ* was omitted from the list of species; yet, according to Scudder, *P. rapæ* may be considered the type.

3rd.—If we were to accept all the genera which are permitted to stand in the 'Historical Sketch,' we should be obliged to separate species which differ in no structural characters, and thus genera would become (as some entomologists assert that they are) purely artificial and unnatural conveniences for grouping together *a small number* of allied species.

4th.—It is not reasonable to accept, as the type of a genus, a species to which the author's diagnosis is not at all applicable; therefore Mr. Scudder's views of *Hesperia* and *Lasiommata* cannot be adopted.

5th.—In some instances the original, and at other times the corrected, spelling of certain names is to be preferred; therefore, I should suggest that *Pinacopteryx* and *Pyrisitia* should not be altered to *Picanopteryx* and *Pyristia*, and that the incorrect forms *Daptonoura*, *Eulaceura*, and *Mitoura*,‡ should not be restored to the genera *Daptonura*, *Eulacura*, and *Mitura*. Mr. Scudder justifies the restoration of the spelling *Mitoura* on the plea that "it is derived from '*Mitos*' and '*oura*,'" but I think when Mr. Rye made the correction he was fully aware of this fact.

6th.—Although notes are inserted in the 'Sketch' up to March, 1875, several of my own genera are omitted:—

PALÆONYMPHA, Trans. Ent. Soc., 1871, type *P. opalina*.
ANCISTROIDES, „ „ „ 1874, „ *A. longicornis*.
PSEUDERESIA, „ „ „ „ „ *P. catharina*.

Probably other authors may be able to add to these desiderata.

* See *Xenica* and other genera; of course I feel were the shoe pinches my own corns first.
† I may here call attention to Scudder's notes on the genera *Pterourus*, *Tanaoptera*, and others.
‡ I only quote these as examples.

In conclusion I would add that, as one who has a great regard for Mr. Scudder, I offer these remarks in no captious spirit; indeed, I look upon all scientific criticisms as offered in a professional, and therefore purely friendly, character; and I should be exceedingly sorry to think that even my adversaries as entomologists were not my friends as men.—ARTHUR G. BUTLER, 17, Oxford Road, Ealing: 19*th April*, 1875.

On killing and preserving Hymenoptera.—The neglect of these insects has, to a certain degree, a reason: viz.,—that collections of them, such as one generally sees, present anything but a charming picture, as the insects are unequally pinned, some high, some low, with antennæ, legs, and wings stretched out in all directions, or, on the contrary, pressed to the side like the limbs of a mummy. The neglect on the æsthetic side is also a great disadvantage in a scientific point of view, as it increases the difficulties, great enough already, in naming the species. For instance, how is it possible to ascertain the distinction between the veins of the wings if the wings lie on the top of each other on the body; or, how can one examine the structure of the meta-thorax and the abdomen, if these parts are covered by the wings; or the characteristic mark of the legs (for instance, the marks on the fore-leg of many male *Megachile*, &c.), if the tibiæ lie on the thighs, or the legs are all contracted? What a nuisance it often is to determine the species or genus of such a creature; whereas, it could be told in a moment if the specimen was in a good state of preservation.

To obviate this evil, and to cause the care in treatment which is due to the *Hymenoptera* to be given to the order, such as is bestowed on beetles and butterflies, I take the liberty to make public my method of arranging *Hymenoptera* for a collection, it being the result of thirty years' practice.

As the mode of killing is of great importance, as preparatory to preserving, I cannot help touching briefly upon it. Sulphuric ether, chloroform, benzine, and cyanide of potassium, are the means of producing death, which are generally made use of. But all the ways have the same inconvenience;—that the limbs become very soon tender and stiff, whereby the chance of preserving them is made very difficult, if not impossible.

I speak strongly against cyanide of potassium for two reasons; first, because with this highly dangerous poison a slight want of care may cause a misfortune; and, secondly, because it works strongly on the colour of the insect; for instance, it changes beautiful yellow into red, whereby the insect cannot be recognised, and often gives rise to a new pseudo-species, as we already have in the *Amblyteles regius*, which is nothing more nor less than *A. fasciatorius* (*vide* Stettin. Ent. Ztg., 1874, p. 142) with the colour changed in the above manner.

The method which I use was, according to my knowledge, first employed by a collector in this neighbourhood for killing beetles, and his good success occasioned me to make use of it for other insects. A small bottle (if possible, somewhat compressed) of white glass, and with rather wide neck, is half-filled with dried moss, or instead, especially for smaller insects, which are easily lost, small bits of paper may be taken. Before I begin my excursion, I choose my bottles according to the booty I expect to bring home; I put some sulphuric vapour into each by means of a lighted sulphur match, and take care to close the bottle well.

For the larger bottles I use the sulphur matches, as they were called before the introduction of lucifers, and which are easily made. By right treatment the sulphur will burn away, but not the match, which will soon go out. The sulphuric vapour thus formed does not easily evaporate, and one can put insects, from one to three hours after they have been caught, into the bottle, where they are very soon dead.

In doing this there are two things necessary to observe: first, to put the insects into the bottle as quickly as possible, that the vapour may not escape; second, not to expose the bottle to the sun, or the vapour in it turns to liquid, and hairy insects are spoiled. Humble-bees require especial care; for instance, when one is sticking them, if the pin slips, a juice flows out of the wound which sticks the hairs together, and thus destroys the most perfect examples.

This can be avoided by sticking the bee with a very fine needle, and sideways, so that the honey-stomach is not pierced; or by putting a small pair of pliers in at the opening of the net, and seizing the bee by the leg; and also by being careful not to put too many bees into a bottle, for then, if they do not die quickly, they crawl over and besmear each other with the matter from their wounds, or bite each other's antennæ off, and exhale so much carbonic acid gas, that if a lighted match be introduced, it will immediately go out, and produce no sulphuric vapour.

It is best to prepare insects killed in this way on the following day; still, if necessary, the setting can be put off till the second or third day, if the bottles remain well-corked in a cool place. I try to stick the insects equally in such a manner that about a fourth of the pin remains visible above, and the other part is perpendicular through the sternum, this being of great importance in setting. For setting I use a smooth-planed board of pine or lime-wood, of about 35 centimetres long, 3½ thick and 4—8 broad, with a grove along the centre, about 3 to 20 mm. broad, and about the same depth.

In the bottom of this groove are some holes made perpendicularly, and filled with cotton wool, but not too much of it. The pins are put into these holes (best at the side between the wood and the cotton) as far as the roots of the wings of the insects; next, the legs are arranged, the front ones towards the front, and the middle and hind ones in an opposite direction, if possible not straight, but bending from the knees.

Next, the wings are to be stretched out inclining a little to the front by means of pieces of paper over them fixed by a pin at each end.

The separation of the front from the hind-wings is self-acting, because the front ones spread over the front edge of the hinder ones, and a little hook on the edge of the under-wing, when the fore-wing is moved, pulls the hinder one after it. Lastly, the antennæ are brought into position by means of needles; care should, however, be taken not to stretch out these organs in *Ichneumon* females when they are rolled up, as a characteristic peculiarity would be lost.

The insects need not remain on the setting-board longer than necessary for the wings to remain as placed, when the strips of paper may be removed. Small insects, especially Ichneumon-flies, are ready, as far as setting is concerned, on the following day, but larger ones, such as humble-bees, often require a week or more.

In setting the wings, the bodies of the insects are obliged to be brought into

such a small space, that the natural position and separation of the legs from the body is not easy, so after the setting is finished, the legs must still be turned outward by means of strong needles, but with great care, the needles being placed as near to the body as possible, because by this time the legs will bear moving only from the base, being there not thoroughly dried.

Small *Hymenoptera*, for which the finest pins are too thick, have to be stuck on fine silver wire, as *Micro-Lepidoptera* are, and mounted on pieces of the pith of the Jerusalem artichoke *(Helianthus tuberosus)*, or on birch-agaric *(Polyporus betulinus)*.

For the sake of uniformity, these pieces should be cut to some particular measure (about 1 cm. long, 2 to 3 mm. broad, and 3 mm. thick); these are stuck on pins, and prepared at the beginning of the collecting season, in order to have supplies ready.

These pieces of pith are placed on the pins so that the insects on them are at the same height at the other insects arranged on pins (about two-thirds up the pin); and the piece should be fastened on the under-side by means of a little gum, to prevent its turning round. Whoever wishes to arrive at a higher state of perfection, and to rival the *Micro-Lepidopterists*, may try to set these small insects (mostly gall-flies, *Braconidæ* and *Pteromalidæ)* before sticking them on to the pith. The smallest excepted, the larger ones would not offer much more of a difficulty than, perhaps, a *Nepticula*. The groove in the setting-boards for such insects, if filled up with the above-named pith, offers the best medium for this purpose. Patience and practice are here, as well as elsewhere, necessary; and whoever has not, or does not acquire, those essentials, or who contends that careful preservation, setting, &c., is pedantic, will be obliged to renounce the æsthetic, as well as the most practical, use of a *Hymenoptera* collection.

If Mr. F. Smith was so charmed with his method of preparing *Hymenoptera*, which left much imperfection, that he was ready to affirm that a collection of insects prepared according to his system, was "worth a pilgrimage to look at" (The Entomologist's Annual, 1856, p. 106), even more could be maintained with regard to a collection made up in the above way.

It is easily to be understood that such a preservation as that above mentioned can only be carried out when one is at home, or in some one place for any length of time.

On long journeys, where the chief thing is to collect, and to bring the collection into the smallest space possible, *Hymenoptera* can be immediately pinned, and then stuck in a box which has been saturated with benzine; or, after having first been killed in the above way, they may likewise be pinned or packed between layers of wadding, and the intermediate space strewn with camphor; they can afterwards be relaxed, and then preserved, &c. Still they do not bear it as well as beetles and butterflies do; however, they bear it better than *Diptera*, which are only fit for anything if immediately killed and pinned.—Dr. KRIECHBAUMER, Munich. (Extracted from the Stettiner Ent. Zeitung, xxxvi, 88, 1875).

ENTOMOLOGICAL SOCIETY OF LONDON: *3rd May*, 1875.—Sir S. S. SAUNDERS, C.M.G., President, in the Chair.

Prof. H. Burmeister was elected Honorary Member to fill the vacancy caused by the death of Prof. Zetterstedt.

The President exhibited specimens of *Stylops* taken by himself from *Andrena atriceps* recently captured at Hampstead, and remarked on their habits and peculiarities. Mr. F. Enoch, who had visited the locality at an earlier hour (between 9 and 10 a.m.), had taken 17 males, one on the wing. He remarked on the differences presented by the females of *S. Spencii*, which infests *Andrena atriceps*, and *S. Tiwaitesi*, parasitic on *A. convexiuscula*; and said it was very desirable that the *Stylopidæ* should be carefully examined with respect to the species of bees upon which they were found. One individual of *A. atriceps* produced a male *Stylops*, and in the same bee were four female pupæ.

Mr. Smith concurred in the President's remarks as to the desirability of a more extended study of our native *Stylopidæ*, and thought that instead of the few species now recorded, we probably possessed nearer a dozen.

Mr. C. O. Waterhouse exhibited a species of *Chelifer* (or allied genus) found under the following circumstances. Being desirous of examining certain structures in a large species of *Passalus* from Rio Janeiro, he took out the abdomen of the beetle, and the *Chelifers* were found between it and the elytra. He also exhibited the drawing of the base of the abdomen of a species of *Ascalaphidæ* from W. Australia, remarkable for having, in this position, a large bifid hump, each division furnished with a crest of hairs: the insect was considered to be the ♂ of *Suphalasca magna*, McLach.

Mr. McLachlan said that Mr. Waterhouse's determination of the species was probably correct; he believed that a second example existed in Hagen's collection, received by him from Schneider under the MS. name of *Azesia camelus*: the only analogous form was *Acmonotus incusifer*.

Mr. Wormald exhibited a box of *Neuroptera*, &c., collected in Japan by Mr. H. Pryer. There were several beautiful species of *Panorpa*, and a new genus allied thereto. Also a very remarkable Trichopterous insect of the genus *Perissoneura*, of large size, black, with a large white spot in each wing, deceptively like some species of butterflies.

Mr. Müller communicated a note respecting a recent exhibition, by Mr. Cole, of ash-leaves deformed by a *Cecidomyia*; he said it was *C. botularia*, Winnertz, of which he had published an account in the 'Gardener's Chronicle' for 1870, p. 1731.

Mr. McLachlan read an extract from the Rev. A. E. Eaton's first report as Naturalist to the Transit of Venus Expedition to Kerguelen's Island, published in the Proc. Royal Society. [This extract is reprinted *in extenso* in the present number, *ante* p. 1]. A discussion ensued as to the manner in which the fact of most of the insects being apterous (or nearly so), might be accounted for. Mr. McLachlan alluded to the idea that the constant prevalence of high winds rendered a large spread of wing useless; Mr. Jenner Weir stated that another hypothesis had been suggested, viz., that as all the endemic flowering plants were apetalous, and apparently self-fertilising, the presence of winged insects was not necessary.

Prof. Westwood communicated a paper on short-tongued bees of the genus *Nomia*, and another on species of *Rutelidæ* from Eastern Asia and the islands of the Eastern Archipelago.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

(*continued from Vol.* xi, *page* 232.)

Genus THAMNOTETTIX, Zett.

As originally constituted by the author, this genus contained fourteen species, which were sub-divided into two sections, the first containing eleven, and the second three, species; but subsequent authors have agreed to differ, not only from him, but even from one another, as to their distribution.

Kirschbaum, in his "Athysanus-Arten" (1858), was the first to commence the work of demolition, by placing two of the species (*grisescens* and *plebeja*), being all that were at that time known to him, in the genus *Athysanus*, Burm. Three years later, Flor, in the "Rhyn. Livl.," assigns the same two species to his sub-genus *Athysanus*, and such others, belonging to Zetterstedt's genus, as he knew, viz.: *prasina*, *biguttata*, *cruentata*, *Torneella*, *subfuscula*, and *striatula*, he carried to his sub-genus *Jassus*. In 1868, Kirschbaum, in his "Cicad. Wiesb. u. Frankf." sinks his former genus, *Athysanus*, to a sub-genus, still retaining the same two species in it. Others, with which he had become acquainted in the interval between the publication of his works, he retains in his sub-genus *Thamnotettix*. Then came J. Sahlberg's work in 1871, published in the "Not. Fenn." He appears to have known all Zetterstedt's species except one (*lineolata*). With the exception of three, he follows Zetterstedt, restoring *plebejus* to its original position, but placing *grisescens* and *sordidus* in the genus *Athysanus*. The only remaining species, *striatula*, he disposes of in a new genus of his own (*Limotettix*). Had Fieber lived to complete his projected work, judging from the "Kat. der europäischen Cicadinen" (1872), we should have had a totally different state of matters. For Zetterstedt's type of his genus, Fieber characterizes a new one, *Allygus*, and certainly the insects which he includes in it have a distinct character in size and uniformity of markings; this may, however, eventually prove to be only sectional. He then adopts *cruentata* and *Torneella* as the only representatives of Zetterstedt's genus, and consigns the remainder to the genus *Athysanus*, Burm. With these differences of opinion it is difficult to know how to deal. Generally, in the following paper, I have adopted Fieber's views, so as to prevent greater confusion; and I believe the diagnoses given will be found ample enough to lead to the identity of all the species.

THAMNOTETTIX (Zett.), Scott, Fieb., p., J. Sahlberg, p.

For the most part elongate, slightly dilated across the middle of the elytra.

Head—crown: measured through the centre equal to or more than half the length of the basal margin; sides in front gently rounded to the centre, which is itself rounded. *Ocelli* placed close to the front margin and near the eyes. *Face* moderately convex. *Antennæ* short, second joint cylindrical.

Thorax—pronotum twice as broad as long; anterior margin convex; posterior margin straight across the scutellum, from thence to the short lateral margins acutely rounded. *Scutellum* triangular; apex acuminate. *Elytra* as long as or longer than the abdomen; apical areas, four. *Wings:* first and third longitudinal nerves entire, second furcate at or just beyond the middle; first concave next the apex, and joined to the anterior branch of the second nerve by a short transverve nerve; third joined to the inner branch of the second nerve at a short distance from the furcation by a short transverse nerve.

Abdomen: genital valve short, triangular; genital plates elongate triangular, apex narrowly rounded, reaching to the end of the last segment.

A. Testaceous Species.

Elytra lanceolate, without red spots or atoms, pale testaceous; nerves almost white.

Crown sometimes orange-reddish, with a short black streak on each side of the middle of the anterior margin, and a whitish longitudinal streak down each side of the centre. *Pronotum* and *scutellum* sometimes orange-reddish, the former with five, the latter with three, longitudinal whitish streaks. *Elytra:* central apical area and the adjoining ante-apical area generally black or pitchy-brown ..... 1. CROCEA, H.-Sch., = *(attenuatus*, Marshall).

Elytra not lanceolate, pale testaceous; nerves almost white.

Crown with a whitish line down each side of the centre. *Pronotum* with five, *scutellum* with three, whitish longitudinal streaks. *Elytra—clavus* with a black spot at the apex of the central nerve. *Corium:* apex of the discoidal area and base of the adjoining ante-apical area each with a pitchy-brown or blackish spot; all the longitudinal nerves, more or less in different individuals, very finely and irregularly margined with pitchy-brown; central apical area black or pitchy-brown.....2. ATTENUATA, Germ., = *(rupicapra*, Marshall).

Very closely allied to the foregoing species, from which it may at once be separated by the difference in the shape of the elytra and the black spot in the clavus.

Entirely pale testaceous, and thickly covered with minute red spots or atoms.

Face with a black spot on each side of the middle of the upper margin, barely visible from the crown. *Elytra:* apex with a short, longitudinal fuscous or blackish dash, more distinct in some individuals than in others..... 3. CRUENTATA, Panz.

Elytra: nerves on both sides broadly margined with fuscous.

Crown yellow, with two somewhat semicircular black spots next the basal margin, and adjoining each eye, but not touching either; these are joined to two others more interior, down the centre of which is a short fine yellow streak; anterior margin on each side with three rounded black spots which are united, leaving between them in the centre a distinct yellow ⊥-shaped character. *Face* on each side with several transverse black streaks enclosed in an oval black border. *Pronotum* with four longitudinal black lines, the two interior ones placed close together, and leaving a very fine yellow central line and two small spots next the anterior margin, the two exterior irregularly interrupted by transverse yellow lines. *Scutellum* yellow, base black, or black with the basal angles yellow. *Elytra* with a fuscous shade produced by the broad fuscous margin to the nerves. *Corium:* anterior margin with a broad fuscous line throughout its entire length; apical areas fuscous, or the area next the anterior margin with a pale patch in the middle.

♀ testaceous, with the characters on the crown faintly indicated, and those on the elytra almost obsolete ..... 4. MELANOPSIS, Hardy, = *(Scotti*, Fieb., Cat.).

Originally described by Hardy in the Tr. Tyne. Nat. F. C., vol. i, p. 127, 3 (1850), as *Aphrodes melanopsis.*

Crown deep black with a few testaceous spots of irregular size. *Face* deep black on each side, with a few transverse testaceous streaks, round which is an oval black border. *Pronotum* deep black, finely wrinkled transversely, and with numerous short irregular, somewhat obscure transverse testaceous streaks. *Scutellum* deep black with a stop on each side of the centre at the base, side margins and apex obscurely testaceous.

Elytra hyaline; nerves broadly black margined on both sides, thereby forming ocellated spots in the middle of the areas; apical area next the anterior margin generally black ..... 5. CORNICULUS, Marshall.

Minute and closely related to the foregoing species, but its blackness and the ocellated spots in the areas of the elytra are sufficient to distinguish them.

Elytra inclining to yellow, variegated with fuscous; apices of the nerves of the *clavus*, and transverse nerves of the *corium*, white.

Crown viewed from above triangular, from in front somewhat rhomboidal, with two black spots in front on each side of the centre, continued on to the frons, and two square spots of the same colour in a line with the anterior margin of the eyes, the intermediate space between the spots forming a distinct pale cross. *Pronotum* with a few black spots next the anterior margin, and frequently two or more longitudinal fuscous lines. *Scutellum* with a triangular black spot at each basal angle, and generally between these two small ones of the same colour. *Elytra* somewhat yellowish. *Clavus:* commissura, a streak between the nerves,

and another at the apex along the inner margin, fuscous. *Corium:* the two apical areas adjoining the anterior margin, and two patches above the same, fuscous; portions of the discal areas fuscous, but the pattern varies much in different individuals; transverse nerves white ..... 6. SPLENDIDULUS, Fall.

Deep testaceous or yellowish; nerves of the elytra pale.

Crown viewed from above triangular, with two black spots in front, one on each side of the centre, continued on to the frons; in a line with the anterior margin of the eyes, two black ⌐-shaped characters, the space between these and the spots pale yellowish. *Pronotum:* posterior half paler than the anterior. *Scutellum* with a brownish shade. *Elytra* deep testaceous, shining, with a broad brown wash throughout their entire length, leaving the anterior margin of the corium, and a space below the apex of the clavus, pale; down the centre the colour is narrowly darkest; all the nerves pale, and most observable when the insect is in repose. *Sternum* black .... 7. PUNCTIFRONS, Fall.

The diagnoses of the two following species are extracted from those of the Rev. T. A. Marshall in the Ent. Mo. Mag., vol. ii, pp. 265–6 (1866), because the insects in his collection representing the first species are, I regret to say, in such bad condition, owing to their unfortunate submersion some years ago, as to render it an almost hopeless task to make descriptions from them, and in the second species, which he refers to with a ?, there being but a single specimen in the collection of the late T. J. Bold, which I have been unable to examine.

Testaceous. *Elytra* at the apex with some of the cells margined with fuscous.

Crown with two black spots on each side of the centre of the anterior margin, and sometimes faint traces of irregular fulvous spots upon the vertex. *Face—frons* above and on the sides bordered by a bisinuate black line, widest at the vertex; sides with transverse black lines, and some more or less obsolete black patches in which are enclosed pale spots. *Elytra* almost unicolorous, with some of the cells within and round the apex margined with fuscous. *Wings* hyaline. *Legs* distinctly spotted with black; *tibiæ:* third pair at the apex somewhat fuscous; *tarsi:* apex of the joints sometimes fuscous..... .....8. CORONIFER, Marshall.

Fieber, in his catalogue, by mistake, attributes this species to Curtis.

B. YELLOW OR GREENISH-YELLOW SPECIES.

Yellow or fuscous-green.

Frons brown bordered with yellow on each side; above the apex are two curved streaks, the upper one joined to the ocelli. *Elytra* pellucid, longer than the abdomen, apex rounded; nerves pale yellow; apical cells in the middle obscurely spotted with fuscous. *Wings* at the apex faintly smoke coloured. *Legs* pale. *Thighs* with black lines and spots; *tarsi:* third pair black at the base; *claws* black.....9. VITRIPENNIS, Flor.?

Elytra sometimes with the nerves bright yellow.

Crown with a black spot, sometimes almost obsolete, near the anterior margin of each eye. *Face:* upper margin with a short transverse black streak on each side of

the centre, and a black spot in a line with the same, close to each eye; down each side of the centre is a short broad black streak, sometimes almost obsolete, interrupted at intervals by short pale transverse streaks.

10. INTERMEDIA, Boh., = *(lunulifrons*, J. Sahlberg).

C. CRETACEOUS OR SOMEWHAT SEMI-TRANSPARENT SPECIES.

Crown with three somewhat large black spots at the anterior margin, and another in the middle of the basal margin. *Face* with a central black spot almost touching that on the crown; below the base of the antennæ a black spot. *Elytra—clavus:* inner margin and suture, and the adjoining nerve of the corium, black or fuscous-black, the colour of the last fading before reaching the apex.

11. PREYSSLERI, Fieb.

D. GREEN SPECIES.

Crown unspotted, generally with a red central line. *Face* with two black spots adjoining the upper margin; side margins very narrowly, and a small spot immediately below the base of the antennæ black. *Legs* sometimes orange-reddish.....12. FRONTALIS, H.-Sch.

Crown sometimes with a faint lunate brown streak in front on each side the centre, and two spots of the same colour more internally. *Face* pale brownish with pale transverse streaks; at the base of the antennæ a black spot.

13. VIRESCENS, Fall.

Crown bright yellow with four black spots placed as follows—two near the anterior margin of the eyes, and two closer together in front, continued on to the frons. *Face* with a black spot below the base of the antennæ; side margins sometimes very narrowly, and inner margin of the *loræ* broadly black. *Antennæ* pale; second joint except the apex black. *Elytra* sometimes with one or two pale fuscous longitudinal streaks .....14. 4-NOTATUS, Fieb.

Genus GRAPHOCRÆRUS, Thomson, Opusc. ent., i, 57, 25.

Very few will question the correctness of the author's views with respect to the insect about to be described. It has figured in three or four different genera, because no one seems to have known what to do with it, and I hope it has now found a safe retreat. In some respects the insect is much more nearly allied to *Doratura*, J. Sahlb., than to any other European genus with which I am acquainted. The peculiar character of the genitalia of the male, viewed from behind, separates it from all the genera with which it has been formerly placed. The appendage hanging over the tube, and which may be seen by an ordinary pocket lens, resembles a neckerchief with the ends crossed and ready for tying.

GRAPHOCRÆRUS VENTRALIS, Fall.

Oblong, pale green or greenish-yellow, somewhat opaque. *Elytra* of the ♂ as long as the abdomen, ♀ shorter.

Head—crown flat; side margins nearly straight, somewhat obtusely rounded at the centre, within which is a distinct deep transverse channel; across the disc, and a little in front of the anterior margin of the eyes, are four black spots, the two exterior ones just visible in front. *Face—frons* with a black spot on each side of the centre of the upper margin, and another on the cheeks, about in a line with the lower margin of the eyes. *Antennæ* short, pale.

Thorax—pronotum transverse; posterior margin very slightly concave across the scutellum; disc very finely wrinkled transversely; in front with two slight calli, between which are two punctures (in the ♂ generally black). *Scutellum* and *elytra* pale green or greenish-yellow, without markings. *Legs* pale green; *tibiæ:* all the pairs with one row of black spots down the inner margin, least distinct in the first pair and two rows down the exterior margin; apex narrowly black; spines pale brownish-yellow.

Abdomen: genital plates green, somewhat triangular with the outer side convex, reaching beyond the last segment; viewed from behind posterior margin black.

Length, 3 lines.

Taken by Mr. Douglas and myself at Weybridge and Lee in July, and at Abbey Wood in August.

37, Manor Park, Lee, S.E.:
April, 1875.

NOTES ON BRITISH *HOMOPTERA*, WITH DESCRIPTIONS OF ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

(*continued from Vol.* xi, *p.* 199).

TYPHLOCYBIDÆ.

The list of British species at present stands as follows: those marked * are now first introduced, and, with *Typh. tenerrima*, H.-Schf., which is as good as new to us, are described below; the others (except *Eupt. notatus*, Curt., and *E. abrotani*, Doug., which have been otherwise noticed) were described in the E. M. M., vol. iii, by the Rev. T. A. Marshall, and are now referred to by the numbers there given.

1. ALEBRA, Fieb. (*olim Compsus*).

1. *albostriella*, Fall.—Marsh., *l. c.*, No. 1.

2. CYBUS (*Kybos*, Fieb.).

1. *smaragdulus*, Fall.—Marsh., *l. c.*, No. 5.

3. CHLORITA, Fieb. (*olim Chloria*).

1. *viridula*, Fall.—Marsh., *l. c.*, No. 4.
2. *flavescens*, Fab.—Marsh., *l. c.*, No. 6.
3. *apicalis*, Flor,—Marsh., *l. c.*, No. 7.

4. Dicranoneura (*Dikraneura*, Hardy, 1850; *Notus*, Fieb., 1865).

1. *flavipennis*, Zett.—Marsh., *l. c.*, No. 3.
*2. *citrinella*, Zett.
*3. *mollicula*, Boh.
4. *variata*, Hardy,—*N. aridellus*, J. Sahlb., *E. citrinellus*, Marsh., *l. c.*, No. 2.

5. Typhlocyba, Germ., Fieb., 1865 (*Anomia* and *Zygina*, Fieb., 1872).

1. *jucunda*, H.-Schf.—Marsh., *l. c.*, No. 19.
2. 10-*punctata*, Fall.—Marsh., *l. c.*, No. 17.
3. *quercus*, Fab.—Marsh., *l. c.*, No. 20.
4. *ulmi*, Lin.—Marsh., *l. c.*, No. 18.
5. *tenerrima*, H.-Schf.—*T. rubi*, Hardy.
*6. *aurovittata*, Fieb.
7. *nitidula*, Fab.—Marsh., *l. c.*, No. 13.
8. *geometrica*, Schrk.—Marsh., *l*, *c.*, No. 14.
*9. *gratiosa*, Boh.
*10. *lactea*, Leth.
11. *rosæ*, Lin.—Marsh., *l. c.*, No. 12.
*12. *alneti*, Dahlb.
13. *scutellaris*, H.-Schf.—Marsh., *l. c.*, No. 11.
*14. *rosea*, Flor.
15. *blandula*, Rossi,—Marsh., *l. c.*, No. 10.
16. *hyperici*, H.-Schf.—Marsh., *l. c.*, No. 9.
17. *parvula*, Boh.—Marsh., *l. c.*, No. 8.

6. Eupteryx, Curt., J. Sahlb.

1. *vittatus*, Lin.—Marsh., *l. c.*, No. 25.
2. *notatus*, Curt., B. E., xiii, 640.
3. *abrotani*, Doug., E. M. M., xi, 118
4. *filicum*, Newm.—Marsh., *l. c.*, No. 16.
5. *urticæ*, Lin.—Marsh., *l. c.*, No. 26.
6. *auratus*, Lin.—Marsh., *l. c.*, No. 23.
7. *pictus*, Fab.—Marsh., *l. c.*, No. 24.
8. *stachydearum*, Hardy,—Marsh., *l. c.*, No. 28.
9. *melissæ*, Curt.—Marsh., *l. c.*, No. 27.
10. *signatipennis*, Boh.—Marsh., *l. c.*, No. 15.
11. *pulchellus*, Fall.—Marsh., *l. c.*, No. 21.
12. *Germari*, Zett.—Marsh., *l. c.*, No. 22.

There are still many European species of this family which may be expected to occur in Britain. I am greatly indebted to Dr. John Sahlberg for his assistance in confirming and determining many of the species. The following brief descriptions will suffice to distinguish the respective species; I have now no opportunity to go more into detail.

2. Dicranoneura citrinella.

Cicada citrinella, Zett., F. Ins. Lap., 536, 36 (1828). *Cicadula*

citrinella, Zett., Ins. Lap., 299, 13 (1840). *Typhlocyba forcipata*, Flor, Rhyn. Liv., ii, 389, 5 (1861); Kirschb., Cicad., 181, 9 (1868). *Notus citrinellus*, J. Sahlb., Not. Fenn., xii, 165, 3 (1871).

Citron-yellow. *Crown* obtusely produced in front, posteriorly deeply emarginate. *Antennæ* as long as the head and pronotum together. *Pronotum* a little longer than the head, scarcely emarginate at the base. *Elytra* citron-yellow, subhyaline, the nerves and claval suture showing distinctly, the 1st and 4th apical cells longest, of nearly equal length, the 2nd and 3rd sub-parallel, the 2nd much shorter than the 3rd. *Wings* hyaline with yellowish nerves. *Legs* yellow; *claws* of the tarsi fuscous. *Abdomen* above black or blackish, the margin of the segments narrowly yellowish. Length, 1½ line.

Taken, September 23rd, in a gravel-pit at Blackheath, where *Teucrium scorodonia*, *Ballota nigra*, and *Lamium album* were growing together.

3. Dicranoneura mollicula.

Typhlocyba mollicula, Boh., Vet. Ak. Handl., 43, 18 (1845); *Typhl. Flori*, Kirschb., Cicad., 179, 6 (1868); *Notus molliculus*, J. Sahlb., Not. Fenn., xii, 166, 4 (1871).

Citron-yellow. *Crown* obtusely produced in front; *face* very long. *Pronotum* at least twice as long as the head, posterior margin slightly emarginate. *Elytra* citron-yellow, sub-diaphanous, towards the membrane colourless and transparent, leaving the yellow nerves conspicuous, apical area transparent, nerves yellow; costal cell a trifle longer than the 4th, 2nd and 3rd shorter, both of equal length, sub-parallel. *Wings* transparent, nerves whitish. *Legs* pale yellow, *claws* of tarsi fuscous. Abdomen above black, the margin of the segments narrowly pale. Length, 1½ line.

Very like *D. citrinella*; differs especially in the proportion of the apical cells of the elytra, as stated.

Taken July 10th, 1867, on *Helianthemum vulgare* growing outside Darenth Wood, where also were some plants of *Echium vulgare*.

5. Typhlocyba tenerrima.

Typhlocyba tenerrima, H.-Schf., Panz. F. G., 124, 10, and 164, 16 (1834); Kirschb., Cicad., 185, 19 (1868); J. Sahlb. Not. Fenn., xii, 178, 6 (1871). *Typhl. rubi*, Hardy, Tr. Tynes. F. C., i, 417, 3 (1850). *Typhl. misella*, Boh. Vet. Ak. Handl., 122 (1853).

Very slender, whitish and pale yellow. *Crown* obtusely produced. *Pronotum* about one-fourth longer than the head, anteriorly rounded, posterior margin subtruncate. *Elytra* pale yolk-yellow, costa and longitudinal nerves white, broadly at the base; apical area white, diaphanous, with white nerves, the latter, especially at the base, margined with fuscous, the two that run out on the costa and the one on the lower margin each terminating in a distinct black dot. Sometimes the elytra are very pale yellowish, but the costa and nerves are always paler. *Wings* white, transparent, iridescent. *Legs* pale; *claws* of the tarsi fuscous.

Abdomen above black, the segments narrowly margined with white.

Length, nearly 1½ line.

Herrich-Schäffer's figure of the imago is not characteristic, that of the separate elytron is better and agrees with the description, and I have no doubt that our insect is his species. Hardy's description of *T. rubi* is very good and well designates our insect.

A distinct, delicate species; somewhat like *T. ulmi*, Lin., but smaller, whiter, and with the yellow in the elytra of a lighter and brighter hue. Although not absolutely new to us, I have thought it would be well to describe it afresh.

Not rare on bramble in August and September.

(To be continued).

BRITISH *HEMIPTERA*.—ADDITIONS AND CORRECTIONS.

BY J. W. DOUGLAS.

Under the name of *Salda pallipes*, Fabricius described a species of which the diagnosis runs thus: "atra, elytris pallidis, basi macu- "laque marginali atris." Now, there are two species of *Salda* which have been referred to this; the vagueness of the word "pallidis" having no doubt led thereto. The species differ in the shade of the colour of the pale portion of the elytra, which in one is dingy pale yellowish or darker (*pilosella*), and in the other white, more or less clear (*pallipes*); but there is also the more important distinction that in the former species the corium of the elytra is clothed with long black hairs, and in the latter with very small short ones, visible only under a lens of strong power. The difference of colour has been recorded by authors, but has not generally been held to mark a specific distinction; the difference as to the black pilosity does not appear to have been noticed. It is true that Mr. Scott and I, in the description of our *S. pallipes*, mentioned the long black hairs; yet, as we did not at that time know the form with the short hairs, we could make no comparison.

Herr Thomson, in his "Opuscula Entomologica" has, I must think rightly, separated the species, taking the white, short-haired one as the *pallipes* of Fab., and giving the name *pilosella* to the darker, long-haired one. The omission by authors to notice the dark clothing of the species they described makes it difficult to determine the synonymy with certainty; but, with reference to the other characters given, the following may be taken as approximate to the truth. There are some other synonyms that I hesitate to appropriate.

In the Oefv., 390, 7 (1868), and in Hem. Fab., i, 91, 3, Professor Stål refers *Salda pallipes*, Fab. (which, according to him, includes *S. pilosella*, Thoms.), to *S. saltatoria*, Lin., as a variety; I cannot but think this is an error, resulting, possibly, from a misconception of the type of *saltatoria*. Fallén says of *S. pallipes*, *l. c.*, "Pro varietate "majori *S. saltatoriæ* haud rite haberi potest."

SALDA PALLIPES.

Acanthia pallipes, Fab., E. S., iv, 71, 17 (1794); *Salda pallipes*, Fab., S. R., 115, 12 (1803); Fall., Hem. Suec., i, 73, 4 (1829); *p.* Zett., Ins. Lap., 267, 4 (1840); H.-Schff., Wanz., vi, 43, t. 194, fig. 600 (1842); Costa, Atti, vii, 245, 5, t. i, fig. 7 (1847)?; *p.* Fieb., Eur. Hem., 146, 12 (1861); Thoms., Opusc. Ent., iv, 407, 15 (1871). *Salda bicolor*, Costa, Atti, vii, 245, 5, t. 1, fig. 6 (1847).

I give the following from Herr Thomson's description. "Black; "above densely clothed with golden-fulvous pubescence; *elytra* with "pale spots and streaks, or dingy white with the base and some spots "on the disc, black," &c.

"Distinguished from *S. saltatoria* by the larger size, and more "oblong-oval form; the membrane longer and less broadly rounded; the "pronotum less transverse, the arcuate impression and the foveola of "disc deeper," &c.

Two or three examples were taken a year or two since at Hayling Island, by Mr. Moncreaff, and kindly forwarded.

SALDA PILOSELLA.

Salda pilosella, Thoms., Opusc. Ent., iv, 407, 16 (1871). *Acanthia dimidiata*, Curt., B. E., xii, 548, 13 (1835)?. *Salda pallipes*, *p.* Fieb., Eur. Hem., 146, 12 (1861); D. and S., Brit. Hem., i, 527, 8 (1865). *Salda saltatoria*, var. b, Stål, Oefv., 390, 7 (1868), *sec.* Thoms., *l. c.*

Thomson says of this: "Black, densely fuscous-pubescent, above "more sparingly and longer pilose; elytra with streaks and spots, and "with the feet obscure testaceous," &c.

"In form, size and marking very like *S. pallipes*, but the 2nd "joint of the antennæ has a few longer hairs, the elytra are more "fuscous-pubescent internally, and the head and pronotum black-"pilose."

Curtis's *Acanthia dimidiata* is most probably this species, and the name would have to be adopted if the description were sufficient; but, no mention being made of the pilosity, absolute certainty is wanting.

Common at many places on the coast.

15, Belgrave Terrace, Lee, S.E.:
April 30, 1875.

NOTES ON SOME BRITISH *DOLICHOPODIDÆ*, WITH DESCRIPTIONS OF NEW SPECIES.

BY G. H. VERRALL.

In August, 1872, I published in the pages of this Magazine a list of British *Dolichopodidæ*. I now propose giving a few notes on some of the rarer species included therein, especially when additions to our Fauna, adding also a few species which I have noticed or determined since.

DOLICHOPUS PHÆOPUS, Wlk.—I caught this rare species in some numbers near Poole on July 19th, 1871. Walker's (or rather Haliday's) description calls the legs "piceous; the fore pair lighter, with "the tibiæ rather pale." They are, however, usually much darker than that; but Loew was unfortunately so much misled by the description, that he redescribed the species in 1871 from the Harz and Sudetes mountains as *D. montanus*. He has since seen a pair of my catching, which he at once identified as his new species.

D. PICIPES, Mg.—According to Loew, Haliday himself declared his *D. fastuosus* to be a synonym of Meigen's *D. picipes*, after seeing types of the latter at Paris. The specimen in Stephens' collection described in the Insecta Britannica as *D. picipes* is without doubt *D. lepidus*, Stæg.

D. LEPIDUS, Stæg.—Though the specimen just mentioned would make this species British, it is surprising it has not been otherwise noticed. I have captured it abundantly at Rannoch and Lyndhurst, and have also taken it at Braemar and Weybridge.

D. MELANOPUS, Mg.—I caught two males of this in the New Forest on June 26th, 1872.

D. PLANITARSIS, Fall.—Though Walker leaves out the (S) for this species, the only specimen I have seen was caught near Aberdeen.

D. LATILIMBATUS, Mcq.—I captured several of this species on August 26th, 1874, either near Three Bridges Station or about one of the ponds in Tilgate Forest; I also caught two females near Poole three days afterwards, which I think are the same. The species is allied to *D. nubilus*, Mg., but is easily distinguished by the *black* fringed alulæ, more broadly and conspicuously margined lamellæ of the hypopygium, and lighter wings. The front tibiæ bear a long thin bristle near the tip. It is not uncommon on the continent.

D. CLAVIGER, Stan.—I met with this species each time I went to Aberlady, in a wood, but unfortunately mistook it for *D. discifer*, Stan., which I caught commonly at Rannoch and Braemar.

D. WAHLBERGI, Zett.—This species is well distinguished from *D. plumipes*, Scop., by its immaculate hind tibiæ and pale base of hind tarsi, by the absence of the dark line down the middle tibiæ, and the darkened tip with a white spot at the side, and by the longer and more feathered basal joint of the middle tarsi, which is as long as the other four joints together, the whole tarsus being comparatively longer than in *D. plumipes*. I have caught it at Abbott's Wood and The Plashett in Sussex, near Three Bridges, and in Essex. It seldom associates with *D. plumipes*.

D. SIGNATUS, Mg.—Walker seems to have correctly identified Meigen's *pennatus*, but does not seem to have noticed his *signatus* (= *argentifer*, Lw.). The latter has the middle tarsi without any feathering, but with the two last joints silvery in front, the antennæ black with only the base beneath yellow, and the hind tibiæ dark at the tip, bearing near the base a peculiar brown spot. I have caught *signatus* at Lyndhurst, Weybridge, and Aberdeen, and I think I have the female from Braemar and Rannoch.

D. MEDIICORNIS, *sp. n.*

♂ ♀. *Viridis, facie flavido-albâ, antennis sub-elongatis, articulo primo subtus luteo, fronte viridi, oculorum ciliis inferioribus flavis; abdominis incisuris nigris; pedibus flavis, coxis posterioribus cinereis, tarsis nigris, anterioribus basi flavidis, tibiarum intermediarum apice infuscato, posticarum nigro; alis sub-fuscanis, venâ discoidali leviter flexuosâ, ante apicem alæ excurrente.*

♂, *pedibus omnino simplicibus, hypopygii mediocris lamellis ovatis, minoribus, sordide albidis, apice et superne nigro-marginatis; costâ ubi vena sub-costalis excipit simplici.*

♀, *facie albidâ, antennis brevioribus, pedibus magis luteis et abdomine magis cupreo quam in mare.*

Slightly smaller than *D. trivialis*, Hal. Face whitish, with a yellowish tinge; antennæ rather long, the third joint being elongate, sub-acute, above as long as the other two joints together, below considerably longer. The hypopygium shining black, with more or less grey tomentum, the ends of the outer lamellæ considerably split up, the upper edge more regularly ciliated, and more obscurely margined with black. Legs yellow, front coxæ all yellow, bearing several black bristles at their end and numerous small black hairs on their disc in front, posterior coxæ grey, trochanters yellow, legs quite simple, there being no long bristle on the front tibiæ and

no ciliation beneath the hind femora, the tip of the middle tibiæ is generally infuscated, and then the middle tarsi are scarcely pale at the base, the apical eighth of the hind tibiæ is blackish; the basal joint of the hind tarsi bears two large bristles above. Cilia of alulæ all black. Wings distinctly brownish on the anterior portion, especially about the veins, but with no trace of a stigmatical swelling, the discoidal vein ending distinctly before the tip of the wing. The female has the face broader and rather paler, the body (especially the abdomen) more coppery, the antennæ shorter, the third joint being nearly round, and the legs more luteous.

There is a small group of closely allied *Dolichopi* possessing the following characters in common: femora and cilia of the lower orbit pale, antennæ black, with the base pale beneath, legs simple without even the hind femora ciliated beneath, or the middle tarsi silvery at the tips in the males, the antennæ not inordinately long, the discoidal vein simple and the wings unspotted, without any stigmatical swelling in the male. The species hitherto described in this group are *puncticornis* and *lineaticornis*, Zett. (1843), *grandicornis* and *caligatus*, Wahlberg (1850), and *consobrinus*, Zett. (1859). The only species of these five recorded out of Scandinavia are *lineaticornis*, which is given as British in Walker's "Insecta Britannica," and noted as common in Germany by Loew in 1857, and *puncticornis*, noted by Loew from the Alps. The most distinct of these five seems to be *puncticornis*, with its "epistoma ochraceum" and "antennæ articulo basali subtus ad "apicem puncto parvo luteo ægre observando,"—characters which immediately separate it from *mediicornis*: *lineaticornis* seems to be distinguished from the latter by "epistomate flavido—nervo long. 4to "leviter flexo fere in apice alæ excurrente—similis priori (*trivialis*, "Hal.) sed epistomate flavescente, antennis paullo brevioribus, articulo "ultimo ovali, parum acuto (nec elongato, acuto)—et magnitudine "nonnihil majori abunde distinctus." If *mediicornis* be compared with *trivialis*, it is slightly smaller, the epistoma is of almost the same hue, or even whiter, and the antennæ are distinctly longer, especially the third joint. The *lineaticornis* of the Insecta Britannica is also described as "face ochre-yellow in male, dull whitish in female," and is therefore in all probability distinct from *mediicornis*. *Grandicornis* has "epistomate aureo-ochraceo—antennis articulis basalibus subtus "fulvis, coxis posterioribus basi ad ⅓ cinereis, tibiis posticis ad sextam "partem indeterminate dilute infuscatis," and therefore seems distinct. *Caligatus* has "antennis capite transverso brevioribus, articulis basali-"bus subtus angustissime fulvis, coxis posterioribus basi ad ⅓ cinereis, "nervo quarto in ipsum fere apicem alæ excurrente. Mas; stigmate "alarum atro, punctiformi." The fifth species, *consobrinus*, for which

I would propose the name *maculicornis*, as there was an existing *Dolichopus* (now *Tachytrechus*) *consobrinus* of Walker, is certainly distinct by its wings "linea stigmaticali breviuscula atra," and "antennis arti- "culo primo subtus ad apicem luteo." I am, therefore, rather reluctantly compelled to give a name to the species which I caught in some numbers in the New Forest on June 26th, 1871, as it does not satisfactorily agree with any previous description that I am acquainted with. Subsequent examination of the Swedish types may prove that some of them are incorrectly or carelessly described.

D. SABINUS, Hal.—I caught this pretty little species abundantly on the coast at Aberlady on July 27th, 1873, and have taken it during the present month at the Salterns, Fawley, Hants. A curious misprint occurs in the Scottish Naturalist on the first of these captures, the species being called *salinus*, a name which exactly suits its habits.

D. VIRGULTORUM, Wlk.—I caught a few of this rare species in Plashett Park, near Lewes, on August 4th, 1872.

D. AGILIS, Mg.—This species appears in the list simply from a female caught at Leith Hill on June 25th, 1868, which was named by Loew as *agilis?* I fear it is incorrectly named.

GYMNOPTERNUS PRINCIPALIS, Lw.—This handsome species, first described by Loew in 1861, has occurred at Meseritz, in Holland, and in Hungary. I caught three specimens near Poole on July 19th and 20th, 1871. It is about the size of *G. nobilitatus*, L., with the antennæ reddish-yellow, the tip being black, the arista somewhat plumose, the cilia of the lower orbit pale, the legs yellow, the wings greyish, brownish near the costa, and the face white.

G. GRACILIS, Stan.—After all, this species is not a synonym of *nigricornis*, Mg., and the name *gracilis* must therefore be reinstated. It is well distinguished from its allies by the *pale* fringed alulæ and pubescent scutellum. I caught one male at Penzance, on July 8th, 1871.

G. CHŒROPHYLLI, Mg.—At Aberlady, and at Mount St. Michael, near Penzance, I found a *Gymnopternus* in abundance on *Umbelliferæ*, which I conclude to be this species; at any rate a specimen of the same caught near Lewes has been so named by Loew. It is closely allied to *G. germanus*, W., but differs in size and in the shape of the hypopygium.

G. PLAGIATUS, Lw.—A male caught at Abbey Wood on July 24th,

1870, seems to belong to this species. It has the cilia of the lower orbit pale, two basal joints and base of third joint of antennæ reddish-yellow, legs yellow, face silvery, cilia of the alulæ black, wings greyish, cubital and discoidal veins only slightly converging, the discoidal ending almost in the tip of the wing, and the lamellæ of the hypopygium blackish, pale at the base.

G. ATROVIRENS, Lw.—On one of the Entomological Club days, I caught a male of this species at Footscray. It is blackish-green, cilia of the lower orbit black, face white, antennæ all black, scutellum bare, legs all black, bristly, front tibiæ with a long bristle near the tip, hind femora ciliated beneath with pale hairs, lamellæ of the hypopygium black, considerably jagged, wings very dark, cubital and discoidal veins strongly converging. Size, nearly $2\frac{1}{3}$ lines.

G. ANGUSTIFRONS, Stæg.—The female specimen of this, which I had caught myself, is now in Germany, and I have no memorandum of its locality, but I think it was Rannoch; the species has the cilia of the lower orbit black, the scutellum pubescent, the femora black and is much smaller than *G. cupreus*, Fall., which is the only other species with these characters.

G. METALLICUS, Stan.—I caught this once abundantly in Epping Forest on June 16th, 1872, and soon after met with it in Plashett Park, near Lewes, on August 4th. It is one of the species with black cilia of the lower orbit, and pubescent scutellum, with pale legs, and no black stigmatical swelling on the wings of the male; it is much larger than *G. ærosus*, and has a white face and yellowish lamellæ of the hypopygium.

G. ÆROSUS, Fall., var. *Dahlbomi*, Zett.—This variety of *ærosus* is common in Scotland, it has the legs considerably darker than the normal form, but does not seem to differ otherwise.

G. ASSIMILIS, Stæg.—This species is closely allied to *G. ærosus*, but the male has a white face, and the cubital and discoidal veins converge more. I have met with it sparingly at Rannoch, Lyndhurst, Three Bridges, and Darenth.

G. NANUS, Mcq.—I caught a few of this at Reigate on July 5th, 1872.

Lewes: *May*, 1875.

CAPTURES OF *STYLOPS*.

BY FREDK. ENOCK.

COMMUNICATED WITH NOTES BY FREDK. SMITH.

I send for publication a very interesting register of the captures of stylopized *Andrenidæ*, kept by Mr. Frederick Enock, who this spring has been wonderfully successful in obtaining so large a number of the rare males of *Stylops;* what species it may eventually prove to be, will in all probability be determined by the President of The Entomological Society, Sir Sidney S. Saunders, who is at present investigating our British species. It will be seen that the register records no less than seventeen males being obtained; since the table was drawn up, Mr. Enock has secured another male,—certainly under circumstances that throw a new light on the history of *Stylops*. The stylopized bees were kept in a box that contained a good bed of moist sand; they were kept well supplied with fresh flowers, and at the expiration of twenty days it was supposed that all the males of *Stylops* must have emerged from the bees, in fact, the latter were also supposed to be dead; but, upon removing the gauze that covered the box, a bee flew out, which, upon examination, was found to have an undeveloped male of *Stylops* still remaining between the abdominal segments. This was a matter of great surprise to Mr. Enock, who, immediately on making the discovery, removed the cap of the pupa-case of the *Stylops*, when, to his increased astonishment, he saw it move its antennæ; it very shortly emerged and expanded its wings, was secured, and prepared as a specimen for the cabinet.

Whether in a natural state the *Stylops* would have remained such a length of time as twenty days as ascertained, and probably some three or four days before Mr. Enock captured it, it is impossible to determine. I have, myself, bred six males of *Stylops*, each at different periods; but I never found the males longer than two days before they emerged after being captured; in fact, I think only on one occasion did more than one day elapse before they emerged.

One misfortune has attended Mr. Enock's captures—he totally destroyed eight specimens in endeavouring to prepare them for microscopic objects.

All the stylopized bees, with, I believe, a single exception, were *Andrena atriceps*, the other species being *Andrena Afzeliella*. Since the tables were drawn up, Mr. Enock has taken *Andrena convexiuscula* and *A. labialis* infested by females of *Stylops*. All the captures were made at Hampstead Heath. F. SMITH.

April 5th.—Wind west, and very stormy; dull morning; went to Hampstead Heath; was on the ground at ten o'clock; the rain soon came on; I noticed numbers of *Melöe* on the march; at eleven o'clock the sun shone out, and very soon I saw a bee, but it was carried away by the strong wind; soon after I caught one, examined it, and found it was stylopized; a second and a third taken were also stylopized. I took two or three more, and then the rain came down again, which put a stop to my work; it continued to rain till half-past eleven, when the sun again shone out; when the bees again appeared. I caught numbers up to half-past twelve, when I left the heath, having taken thirty-six specimens of *Andrena atriceps*. Ten were stylopized, as follows:—

1 ♀	*Andrena* containing	2 ♀	*Stylops*			
4 ♀	„	„	1 ♀	„	each.	
2 ♂	„	„	2 ♀	„	„	
1 ♂	„	„	3 ♀	„		
2 ♂	„	„	1 ♂	„	„	

April 6th.—Wind S.W.; warm morning; arrived at the Heath at half-past nine: the first bee I caught had a female *Stylops*. The sun shone from ten to half-past eleven, during which time *Andrena atriceps* was very active; I took a considerable number with my net. At half-past eleven the sun went in, when I took the bees resting on the ground; at a little before half-past eleven I saw something flying in a very peculiar manner over a broom-bush; I captured it with my net; it proved to be a male of *Stylops*. I think I should now know a *Stylops* on the wing the moment I saw it, its flight is different to anything else I have ever seen; a very peculiar unsteady flight, something like an *Ephemera*, what I should call an uncomfortable flight, up and down, this way and that way, in fact at all angles, not keeping in one direction more than a few inches, perhaps for about six or seven. My captures were as follows:—

Bees.	*Stylops*.	Time.
♀	♀	9.30.
♂	♀	„
♂	♂	9.40.
♂	♀	„
♂	♂	9.45.
♂	♀	„
♂	♀	„
♂	♀	„
♂	♀	10.0.
♂	♂	„
♀	♀	10.10.
♂	♀	„
♂	♂	10.15.
♂	♂	„
♂	♀	„
♂	♀	„
♂	♂	„
♂	♂	11.0.
♂	2 ♀	„
♂	♀	11.5.
♂		11.30.
♂		„
♂	♂	11.45.
♂	2 ♀ ♂	„
♂	♀ ♂	„
♂	2 ♂	11.50.
♂	♀	12.0.
♂	2 ♀	12.15.
♂	2 ♂	„
♂	♂	„
♀	♂	„
♂	♂	12.20.
♂	2 ♀	„
♂	2 ♀	„
♂	♀	„
♂	♀	12.30.
36	27	17

On this second day, the thirty-six bees taken contained forty-four specimens of *Stylops*—seventeen males and twenty-seven females; these, added to the captures on the previous day, make a total of forty-six bees, that contained in all nineteen males and forty females.

F. Enock.

DESCRIPTIONS OF THREE NEW SPECIES OF *LYCÆNIDÆ*.

BY W. C. HEWITSON, F.L.S.

Hypochrysops Delicia.

Upper-side: metallic silvery-white, tinted (as the light falls upon it) with blue or green. Anterior wing with the outer half dark brown. Posterior wing with the costal and outer margins rufous-brown: the anal angle scarlet.

Under-side: stone colour. Both wings with a series of scarlet spots on the outer margins traversed by a silver line. Anterior wing with a large, irregular, longitudinal, scarlet spot in the cell bordered with black and silver, a minute black spot also in the cell: three black spots below these, a hexafid scarlet transverse band beyond the middle, bordered by black and silver. Posterior wing with the base of the costal margin and several transverse spots scarlet bordered with silver: one spot near the base succeeded by three spots, by a band of four spots, by two spots near the middle, and by a band of seven spots (one bifid).

Exp. $2\frac{1}{10}$ inch. Hab. Australia.

In the collection of Henley G. Smith.

A splendid species, most nearly resembling *H. ignita* on the under-side.

Hypochrysops Bubases.

Upper-side: cerulean-blue with all the margins broadly brown. Posterior wing with two slender tails, the outer margin rufous, broadest near the anal angle, where it is bordered above and below with silver.

Under-side: rufous. Both wings undulated throughout with black, and marked by several irregular black spots, and by numerous small silvery-blue spots, some of which form two sub-marginal bands.

Exp. $1\frac{8}{10}$ inch. Hab. Malacca (Wallace).

In the collection of W. C. Hewitson.

Aphnæus Vixinga.

Upper-side: dark red-brown. Anterior wing with a small white spot at the end of the cell. Posterior wing with two tails, the anal angle rufous.

Under-side: rufous, pale. Both wings with many silver spots. Anterior wing with the base yellow, succeeded by transverse bands of two spots, of three spots, and of four spots (one of which is linear), by two spots near the costal margin, and by a band near the outer margin of six spots, all silver bordered by red-brown; a sub-marginal series of brick-red spots. Posterior wing with several spots from the base to the middle, succeeded by a transverse band of six spots, by two linear spots on the abdominal fold, a spot at the apex, and a spot near the anal angle, all silver, bordered with brick-red: some spots near the outer margin and the anal angle brick-red: a sub-marginal series of dark brown spots decorated with silver near the anal angle, a yellow spot at the anal angle.

Exp. $1\frac{7}{10}$ inch. Hab. Borneo (Lowe).

In the collection of W. C. Hewitson.

Much larger than any hitherto known species of this very beautiful genus.

Oatlands, Weybridge:
June, 1875.

Note on capture of Aphodius villosus, &c., at Mickleham.—At the beginning of the present month, whilst beating hazel for *Cryptocephalus coryli* and *nitidulus* (of both of which I obtained a few examples) at Mickleham, I was much staggered at finding a specimen of the rare *Aphodius villosus* in my umbrella; how it got there I know not, unless on the wing at the time. The captures of this species are certainly of an accidental character, it only once, I think, having been found in dung in this country; this will be the first time it has been recorded from so near London.

Only a few minutes before this, my friend, Mr. Marsh, who was with me at the time, picked up a ♂ example of *Megapenthes lugens* from a leaf of the common stinging nettle,—an extraordinary capture.

Bembidium Sturmi has also recently occurred to me on the banks of the Mole here. It looks as if Mickleham was not yet exhausted of its Coleopterous fauna. —G. C. Champion, 274, Walworth Road, London: *June 1st*, 1875.

Compsochilus palpalis at Caterham.—On the 8th of June, whilst sweeping towards evening on the banks of a small pond at Caterham, Surrey, I was much gratified at finding a fine example of *Compsochilus palpalis* in my sweeping net.

This will make the fourth British example, all from different localities, viz.:—Tunbridge and Sheerness, Kent, and Wandsworth and Caterham, Surrey.—Id.

Note on Orchestes iota; with a moral.—My captures of *Coleoptera* this spring have been few and unimportant, and many good species have been very rare or altogether absent. I have, however, again found a few *Cathormiocerus maritimus*, Rye, and eight specimens of an *Orchestes*, which Mr. Rye has named for me *iota*, Fab. He also tells me that, according to M. H. Brisout de Barneville's Monograph, this species feeds on birch, *Salix capræa*, and poplar; but all my specimens were beaten from *Myrica Gale*, in the latter end of May. On receiving his note I went again to the locality, and carefully beat the sallows, but failed to obtain any, yet I again beat four from the 'sweet gale.'

This species is, I think, rare, which is no doubt owing to the difficulty of working a bog in the spring when full of water; and, had not the present season been a dry one, I could not have got at it. As it was, I had to step from tuft to tuft, carefully avoiding the water between, which was in some places very deep. An incident occurred, whilst making my last search in this place, which I will relate, as it may serve as a caution to young collectors. While at work on the middle of the bog, I noticed a well-dressed person eyeing me with evident curiosity, apparently wondering what I could possibly be at with an umbrella up-side down, under a burning sun; and, seeming unable to resist the temptation of satisfying himself, he essayed the somewhat difficult feat of getting at me. The first few steps he managed very well, but I think he must have mistaken the close covering of water-crowfoot on the water for solid ground, for he took a step on the treacherous weed and then disappeared. The next I saw of him, he was standing up to his hips in water and mud, clearing his eyes and mouth. He had unwillingly taken "a header" into the deepest part of it. He emerged from the side farthest from me, and at least three miles from any house that could have been his home,—a wetter, and, let us hope, a wiser, man.

Application: do not let your curiosity get the better of your discretion.—HENRY MONCREAFF, High Street, Portsmouth: *June 15th*, 1875.

The Colorado Potato-Beetle.—This insect, which is one of the tetramerous phytophagous *Coleoptera*, was only known up to a few years ago as living in the Rocky Mountains towards New Mexico, where its larvæ fed upon a wild plant of the order *Solanaceæ*, the *Solanum rostratum*. This *Solanum* not being a common plant, and having only restricted localities, the *Doryphora*, according to the laws of nature, was also a rare insect, occurring where the *Solanum rostratum* existed, and only multiplying in a ratio proportionate to that of the limited distribution of the plant. Note this well; it is essential.

The civilised white man has the bad habit (concerning wild plants and the insects that feed upon them), in proportion as he spreads over the globe, to extend also the cultivation of plants that he uses for food, or which are useful to him in any way. He thus substitutes an artificial flora for the natural one of the countries he invades, and the former becomes still more restricted or vanishes altogether.

The phytophagous insects, whose lot is linked to that of the native plants, follow the same road. Without going beyond our own country, how many times have I not heard a Lepidopterist anathematise the progress of cultivation in the Campine, a progress that each year causes 'good species' to disappear. How many times also

have the botanists returned disappointed at not finding a single species of the rare plants that always used to occur at given localities. In a word, man and his civilization always impoverish the natural flora and fauna wherever he establishes himself.

When the white man and his cultivation arrived in contact with the *Doryphora* in the west of the American Continent, the evil commenced. If the American had there cultivated wheat, maize, or oats, the *Doryphora*, starved by the diminution of *Solanum rostratum*, would have proceeded quietly towards total extinction. Unfortunately, man brought with him the cultivated *Solanum*—the potato—in great quantities, a plant that suited the beetle perfectly, and which it hastened to attack, multiplying in proportion to the food offered to it, so that, increasing plentifully, the species, from one potato field to another, has invaded almost the whole of the North American Continent, to the great detriment of the cultivators, who did not reckon upon having laboured for the benefit of these little pests.

Everybody is acquainted with the fears entertained of the possibility of the invasion of Europe by these insects; everybody knows that measures are proposed to prevent it; but everybody does *not* know that these measures appear to be based upon grave errors concerning the habits of the *Doryphora*. The argument is:—this is an insect that attacks the potato; therefore stop the importation of potatoes from America! Afterwards, when it is shewn that the *Doryphora* has absolutely no connection with the tubers, and eats only the green parts of the plant, instead of abandoning the order of ideas that inspired the projected measure, it is sought to be justified by the fear of the presence of larvæ or pupæ in the earth that accompanies the sacks of potatoes.

I need not tell you that if a larva or pupa of the *Doryphora* quitted America in a sack of potatoes it would be crushed long before reaching us, for it is soft and very delicate. More than that; one individual would not suffice, it would be necessary to have the two sexes in a condition favourable for propagation upon their arrival here.

According to Dr. Chapuis, an authority upon this family of insects, neither larva nor pupa occurs at the time when potatoes are collected. At that epoch, the *Doryphora* is in the perfect state, and seeking quarters in which to hibernate, which has induced Dr. Candèze to state, at our (Belgian) Entomological Society, that bales of cotton would be more likely to bring it here than sacks of potatoes. In fine, in this state, it might arrive here by a thousand different modes more probable than by those by which it is proposed to hinder it. Who knows, if it may not be that the Universal Exhibition at Philadelphia in 1876, and the materials used for packing all that is returned, are fatally destined to bestow this plague upon Europe? Will one for this send nothing to this Exhibition; will one break all relations with the United States?—Evidently not.

Another question is to know whether the *Doryphora* would be able to acclimatise itself in Europe if once it should penetrate to it. Many say yes, many say no. My learned colleague, Dr. Candèze, does not hesitate to deny absolutely the possibility of such an acclimation; but his reasons do not appear to me the most convincing.

In the doubt that exists, I am asked what is to be done? Wait quietly is my advice. Keep a sharp look-out, and if the detested beetle should appear, act energetically in the same way as if it were the cattle-plague. Let us have no commissions,

no reports, no verbosity, but summary and rapid execution, not only upon the insect and its eggs, but upon the potatoes themselves, which should be destroyed radicaliy (with idemnification of the injured cultivators) in those places were the pest appears, within a stated radius.

If the insects are destroyed with the plants that carry them, those that escape destruction in this way will perish from hunger. Further, if the culture of potatoes and other *Solanaceæ* (tomato and tobacco) be forbidden within a stated district for a year or two, and the *Solanum dulcamara* and *nigra* be carefully extirpated, all disaster to our agriculture will be prevented.

In France, where another insect pest attacks the vine, and even menaces its annihilation, it would have been good had the evil been abruptly stopped at its origin, and to-day one would not have regretted an indemnity well placed at the commencement, not even if it amounted to several hundred thousand francs. In place of that, commissions have been named without number, all kinds of remedies have been tried, volumes and pamphlets enough to fill a library have been written, much money has been spent, much time lost, &c., and the *Phylloxera* has none the less continued its work. It now covers nearly all the departments in which the vine is cultivated, threatening the complete annihilation (unless unexpected help is obtained) of one of the principal sources of the wealth of our neighbours.—A. Preudhomme de Borre, in the Bulletin de la Société Linnéenne de Bruxelles, 1875.

[We have translated the above (from a separate pamphlet-form) as containing some very sensible observations upon a subject that is now attracting general attention in Europe. Later on, we hope to reproduce a paper by a well-known English Coleopterist. Up to the present, the importation of potatoes from America has been forbidden by France, Belgium, Germany, Holland, Russia, and Spain. Great Britain has contented itself by a species of *surveillance*.—Eds.].

Occurrence in Britain of Cladius Brullæi, Dahlbom.—To the list of the British species of *Cladius* given in Vol. xi, p. 253, may now be added *Cladius (Priophorus) Brullæi*, Dahlbom, which I have reared from larvæ found last autumn in Cadder Wilderness, feeding on *Rubus idæus*.

The following is a description of the full-fed larva.

Head deep shining black. Feet and claspers white. Upper part of the body to the spiracles deep brownish rather glistening black; the sides below the spiracles glistening white. The base of the 2nd and the anal segment white. As usual with the larvæ of this genus, the body is covered with tubercles, from which proceed long hairs. Length about 9—10 lines.

In its habits and pupation the larva does not differ from *C. padi*. Dahlbom mentions *Rubus fruticosus* as the food-plant.—P. Cameron, Jun., 136, West Graham Street, Glasgow: 10*th June*, 1875.

Note on the gall of Aphilothrix radicis.—On 20th May I noticed, at Ardlui, Loch Lomond, some fresh galls of *Aphilothrix radicis* on the trunks of oaks, at a

height of 5—6 feet from the ground, instead of at the roots, as is usual. The galls were then quite soft, of a white colour more or less tinged with red. In one gall I observed a couple of the inquiline, *Synergus incrassatus*, deposit their eggs.

Mr. Frederick Smith has recorded a similar occurrence in the case of *Biorhiza aptera*, another root-frequenting gall-fly.—ID.

Note on setting small Hymenoptera.—In the somewhat voluminous extract from Dr. Kriechbaumer's account of his method of setting *Hymenoptera*, which appeared in last month's issue, there are one or two points to which I desire to take exception publicly, lest any one should be induced to enter upon the study of this group of insects under the guidance of this plan, which probably appears easier and less laborious than the process of carding, at least to those who can understand the description given. Without any wish to be captious, I must confess that some sentences are by no means clear to myself, but then possibly a perusal of the original document in its entirety might clear up such difficulties as are caused by an abridged translation. The process described by Dr. Kriechbaumer cannot for a moment be admitted as even possible in the case of those minute *Hymenoptera* (*Proctotrupidæ* and *Chalcididæ*) which are themselves hardly larger than a pin's point, and Dr. K. appears unaware that in most cases the thoracic plates are amongst their chief distinguishing characteristics, for these must of course perish if the insect is impaled on a comparatively monstrous pole almost the thickness of its body. I think if any one will read Mr. Marshall's account in the Ent. Ann. for 1873, p. 128, he will be convinced that, at least for small and medium-sized insects, no plan is equal to that of carding.

For large insects, Dr. K.'s plan is doubtless very effective, but I fail to see the superiority which is claimed for it over Mr. Smith's plan; and in fact I, having practical experience of this latter method, feel convinced that no other plan can display the insects more beautifully or regularly than it. The only difference between the two modes is that Mr. Smith's is possibly more rapid.—A. O. WARD, 13, Lower Park Fields, Putney.

On preserving Hymenoptera, Diptera, &c.—The article by Dr. Kriechbaumer, extracted at page 17 of this volume, was, I presume, written for the especial benefit of continental entomologists, who are more particularly addicted to pinning insects. With British entomologists the case is different. In this country, pins are very much more apt to corrode than they are on the continent; we are therefore under the necessity of employing a method of setting which is adapted to our climate. The larger *Hymenoptera* suffer less from pinning than most other orders of insects; but so great a proportion are very minute, that for these, pinning or even mounting on fine silver wire is a most laborious and unsatisfactory method of displaying them, as compared with setting on card by means of gum tragacanth; and, in a very great number, perforation is simply impossible on account of their microscopic size. Several eminent British entomologists have a prejudice against carding which it is difficult to understand, but no objection to it ever comes from those who have had sufficiently long practice at it to be able to set well; and the longer they are accustomed to it, the more they appreciate it for the facility it affords for the critical examination of specimens, as well as the better preservation of them. Bad carding

is not a bit better than bad pinning, and it is perhaps owing to the careless manner in which it is sometimes done, that the objections to it principally arise. It is quite possible to mount a small insect on card so as to equal in appearance the drawing of an experienced artist, and this is what ought to be aimed at; but the same cannot be said of pinning, at least in *Hymenoptera* and *Diptera*. And if a good coloured figure of an insect is valuable, how much more so is the insect itself when exhibited in a similar style?

I should recommend the carding of about nine-tenths of the British *Hymenoptera*, and of nearly all the *Diptera*, certainly all the *Tipulidæ*. But of all insects not of minute size, which it is desirable to card, there are none for which it is more essential than the *Ephemeridæ*. With the sole exception of the eyes, they preserve well, and the species are recognisable. I can show well-preserved specimens set thirteen years ago.

Let it be borne in mind that the question under discussion is not one of science, but of art, and its decision rests with the artist as well as with the scientific entomologist; but if the artist is also a scientific entomologist, he will know what are the parts of an insect which it is needful to display carefully, so as to be fit for examination with the microscope.—Benjn. Cooke, Bowdon, Cheshire: 12*th June*, 1875.

Deilephila livornica in Glamorgan.—I have to-day had a live specimen of *D. livornica* brought me. It was taken in a cottage in this town.—Evan John, Llantrisant: 27*th May*, 1875.

Reviews.

Entomologische Nachrichten. Nos. 1—4. Putbus. January—February, 1875.

We have received the first four numbers of this new fortnightly periodical edited by Katter. It seems to aim at taking the place of the "Correspondingblatt," formerly edited by the late Dr. Herrich-Schäffer. Each part consists of eight octavo pages. There is little original matter in the parts before us, and we content ourselves by announcing the advent of the journal, and by the remark that, if it is to be a success, it can only be obtained by a considerable improvement in future numbers. Most of our readers (like ourselves, till we looked it out on the map) are probably ignorant of the geographical position of Putbus, so it is well to explain that it is a small town in the island of Rügen in the Baltic.

Seventh Annual Report on the Noxious, Beneficial, and other Insects of the State of Missouri: by Charles V. Riley, State Entomologist. Jefferson City, 1875; pp. 1—196.

It has always afforded us great pleasure to notice Mr. Riley's Annual Reports, and this sensation is by no means lessened on the present occasion. Probably the range of subjects treated upon is not so wide as in some former Reports, but we observe that the author's accustomed careful and exhaustive treatment has in no respect diminished; perhaps in some respects the Report has profited by concentration. Nor must we forget the elaborately careful drawings from the author's own pencil, and the (on the whole) equally painstaking way in which these drawings have been treated by the engraver.

The contents include the "Colorado Potato-Beetle," the "Chinch Bug," the "Flat-headed Apple-tree Borer," "Canker Worms," the "Grape Phylloxera," and the "Rocky Mountain Locust," and almost each article is an exhaustive life-history. The Colorado Beetle is, of course, the much-dreaded *Doryphora 10-lineata;* the Chinch Bug is *Micropus leucopterus;* the Apple-tree Borer one of the *Buprestidæ (Chrysobothris femoratus);* Canker Worms are species of *Anisopteryx*, not unlike our *A. æscularia;* the Locust is *Caloptenus spretus*. In connection with this latter insect, there is a map with shaded parts indicating the counties in the State of Missouri that suffered from it in 1874, with the direction whence the insect came, &c.

At a time when so much alarm is evident in Europe at the possibility of an invasion of the Colorado Potato-Beetle—an alarm that has induced the majority of the European Governments to prohibit the importation of potatoes from America—it appears to us that Mr. Riley's latest published opinions may not be uninteresting to our readers, and we therefore quote them *in extenso*.

He says (p. 8) :—"I must repeat the opinion expressed a year ago—and which "has been very generally coincided in by all who have any familiarity with the insect's "economy—that if it ever gets to Europe, it will most likely be carried there in the "perfect-beetle state on some vessel plying between the two continents. While the "beetle, especially in the non-growing season, will live for months without food, the "larva would perish in a few days without fresh potato tops, and would, I believe, "starve to death in the midst of a barrel of potatoes, even if it could get there without "being crushed; for while it so voraciously devours the leaves, it will not touch the "tubers. The eggs, which are quite soft and easily crushed, could, of course, be "carried over on the haulm, or on the living plant; and while there is a bare possi- "bility of the insect's transmission in this way, there is little probability of it, since "the plants are not objects of commercial exchange, and the haulm, on account of "its liability to rot, is not, so far as I can learn, used to any extent in packing. "Besides, potatoes are mostly exported during that part of the year when there are "neither eggs, larvæ, nor potato-vines in existence in the United States. There is only "one other possible way of transmission, and that is in sufficiently large lumps of earth, "either as larva, pupa, or beetle. Now, if the American dealers be required to care- "fully avoid the use of the haulm or shaw, and to ship none but clean potatoes, as "free as possible from earth, the insect's transmission among the tubers will be "rendered impossible; and when such precautions are so easily taken, there can be "no advantage in the absolute prohibition of the traffic in American potatoes. As "well prohibit traffic in a dozen other commodities, in many of which the insect is "as likely to be taken over as in potatoes, and in some of which it is even more likely "to be transported. The course recently adopted by the German Government, in "accordance with the suggestion made in my last Report, is much more rational, "and will prove a much better safe-guard. It is to furnish vessels plying between "the two countries with cards giving illustrated descriptions of the insect in all "stages, with the request that passengers and crew will destroy any stray specimens "that may be found. Let England and Ireland, together with the other European "Governments, co-operate with Germany in this plan, and have such a card posted "in the warehouses of seaport towns, and in the meeting rooms of Agricultural "Societies, and a possible evil will be much more likely avoided. Some of the "English journals are discussing the question as to whether, with the more moist

"and cool climate of that country, our 10-lined potato-beetle would thrive there "even if imported. There cannot be much doubt that the insect will rather enjoy "the more temperate clime; for while it thrives best during comparatively dry "seasons, both excessive heat and drought, as well as excessive wet, are prejudicial "to it. It is argued by others that on the continent of Europe our *Doryphora* "would not thrive if introduced. The idea that the climate of North America is "less extreme than that of Europe, is rather novel to us of the Cis-Atlantic, and I "am decidedly of opinion that they delude themselves who suppose that *Doryphora* "could not thrive in the greater part of Europe."

Entomological Society of London: *7th June*, 1875.—Sir S. S. Saunders, C.M.G., President, in the Chair.

W. A. Forbes, Esq., of South Castle Street, Edinburgh, was elected an Ordinary Member.

Mr. Briggs exhibited some specimens of *Zygæna meliloti*, bearing a strong resemblance to *Z. trifolii*, and mentioned several instances in which the offspring of *Z. meliloti* exhibited a taint of *trifolii* blood. He suggested that *Z. meliloti* might be only a stunted variety. Mr. McLachlan remarked that the insects of the genus hybridized very freely, and alluded to their pairing several times. Mr. W. A. Lewis had noticed that *Z. meliloti* was by far the most common insect in the New Forest, and as it appeared to have been only discovered of late years, this supported the idea that it was only a stunted variety which had been recently developed there. Mr. Weir said that he had taken the insect twenty years ago in Tilgate Forest.

Mr. McLachlan exhibited a portion of a vine-leaf on which were galls of *Phylloxera vastatrix*, the leaf having been recently plucked in a green-house near London.

The Rev. A. E. Eaton exhibited the insects which he had recently captured in Kerguelen's Island. There were about a dozen belonging to the *Coleoptera*, *Lepidoptera*, and *Diptera*, besides some bird-lice and fleas. They were all either apterous or the wings were more or less rudimentary. One of the *Diptera* possessed neither wings nor *halteres*.

Mr. Briggs exhibited a specimen of *Halias prasinana*, which, when taken, was heard to squeak several times very distinctly; and, at the same time, a slender filament, projected from beneath the abdomen, was observed to be in rapid motion, and two small spiracles below the filament were distinctly dilated.

The President remarked that he had recently discovered a larva in the body of *Andrena Trimmerana*, which had a long telescopic process in front similar to that of *Conops*, and two reniform processes behind. He had frequently found *Conops* in a species of *Bombus*, but he had never observed it before in *Andrena*. Mr. W. Cole remarked on the great number of different parasites attached to the genus *Bombus*.

The Secretary exhibited some specimens of a minute *Podura*, forwarded to him by the Secretary of the Microscopical Society, having been found on the snow of the Sierra Nevada.

Mr. F. H. Ward exhibited some microscopic slides shewing specimens of a flea attached to the skin of the neck of a fowl.

Professor Westwood communicated a "Description of a new genus of Clerideous *Coleoptera* from the Malay Archipelago."

Mr. McLachlan read a paper entitled "A sketch of our present knowledge of the Neuropterous Fauna of Japan (including *Odonata* and *Trichoptera*)."

Part i of the Transactions of the Society for 1875 was on the table.

NEW GENERA AND SPECIES OF *PRIONIDÆ* (LONGICORN *COLEOPTERA*).

BY H. W. BATES, F.L.S.

PARANDRA JANUS, *n. sp.*

Nigro-picea, punctata, subtus castaneo-rufa; antennis piceis, pedibus testaceo-rufis; mandibulis ♂ paulo elongatis, suprà carina ad basin valde elevata, intus ante apicem dente valida bifida apice ipso lato bidentato; epistomate 4-sinuato, medio dente triangulari armato.

Long. 11 *lin.*, ♂ ♀.

In form, similar to the common *P. glabra*. The upper-surface (including mandibles) shining pitchy-black; the whole under-surface (including the inflected margin of the elytra) chestnut-red, legs paler. The whole upper-surface is punctulated, the elytra more coarsely so. The thorax is transverse, and the lateral rim visible throughout from above; it is slightly narrowed from the front to beyond the middle, then more suddenly so, and sinuated before the posterior angles, which are distinct and rectangular. The tarsi are similar to those of *P. glabra*, except that the 3rd joint is more distinctly emarginated; the claw joint is furnished with a bisetose onychium.

♂. The forehead between the eyes has two large obtuse elevations; the front edge of the epistome is strongly quadrisinuate, with a simple central tooth. The mandibles are rather short, robust, with the upper carina much elevated, and a double tooth on their inner edge near the apex, with the apex itself oblique and bidentate.

One example (♂) from Dr. Meyer's collection, Menado, Celebes; one ♀, Andai, New Guinea (Signor D'Albertis).

The species is more nearly allied to the West African *P. gabonica* than to the new Caledonian species.

ANOPLODERMA QUADRICOLLE, *n. sp.*

Cylindricum, nigrum, obscurum, crebre confluenter punctatum; fronte concava, mandibula sinistra basi valide dentata; thorace transversim quadrato, juxta basin subito constricto; tibiis extus multi-denticulatis, apice dilatatis et extus spinosis. *Long.* 8 *lin.*, ♂ ♀.

♂. *Antennæ corpore paulo breviores, articulo* 3^{io} *simplici* (4to *æquali*), 4^{o}—10mo *valde serratis*, 11mo *precedenti duplo longiori. Trochanteres postici spina longissima acutaque armati.*

♀. *Antennæ thoracis basin haud attingentes, sub-moniliformes, articulis* 4—10 *intus paululum dilatatæ. Trochanteres simplices.*

This species agrees with none of the four genera of the group *Anoplodermides*, according to Lacordaire's definitions; it partakes of the characters of all of them, with some specialities of its own; and, as it is probable all four will eventually be combined into one, I prefer referring the insect to the typical genus to creating a new one. The eyes are rather finely granulated, widely distant and sharply emarginated. The forehead is concave, narrowed to the epistome, which is vertical and even concave on its front face. The large tooth near the base of the left mandible exists in both sexes, though much longer in the ♂. The palpi have oval terminal joints. The hind part of the head is thick and convex. The thorax is twice the width of the head; transverse-quadrate, but with regularly rounded sides; the somewhat explanated lateral margin terminates in a rectangle near the base, where the thorax is suddenly constricted; the surface in both sexes is covered with circular punctures, which coalesce in irregular patches, leaving irregular and almost impunctate spaces. The elytra are uniformly and coarsely sub-confluent punctate. The tibiæ are covered with sharp tubercles and denticulations, and the external side of their dilated apices is prolonged into a long tooth; the tarsi are linear, about as long as the tibiæ, densely bristly beneath, with the fourth joint well developed and of the same shape as the others, though smaller. The hind trochanters of the male are prolonged as sharp spines, half as long as the femora.

The antennæ of the ♂ are four-fifths the length of the body; joints 1 to 3 are glabrous and shining, the rest are densely and minutely porous and opaque; the 3rd joint is of about the same length as the 4th, but is clavate and simple, whilst the 4th is greatly prolonged at its outer apex like the 5th to 10th. In the ♀ the antennæ are extremely short, with shining moniliform joints, the 3rd and 11th the longest and nearly equal.

Mendoza. From Mr. Edwyn C. Reed's collection.

APOTROPHUS, *nov. gen.* (fam. *Prionidæ*, sub-fam. *Ctenoscelinæ*).

♂. *Elongato-oblongus. Caput pubescens. Oculi emarginati. Mandibula parum elongata, apice abrupte curvata ibique extus dentata, intus valide unidentata. Palpi ut in gen. Ctenoscelis, apice truncati. Antennæ* 12-*articulatæ, corpore multo breviores; articulo* 1^mo^ *brevi, clavato,* 3^io^ *cæteris singulis duplo longiori,* 4—10 *apice intus productis foveisque magnis porosis. Thorax transversis, inermis, lateribus rotundatis, vix crenulatis, angulis obtusis; suprà inæqualis, medio sparsim lateribus con-*

DESCRIPTIONS OF HITHERTO UNCHARACTERIZED SPECIES OF *PHYTOPHAGA*.

BY JOSEPH S. BALY, F.L.S.

Fam. HISPIDÆ.

Genus *CHARISPA*.

Œdiopalpa, olim, Cat. Hispidæ, p. 16.

CHARISPA AMICULA.

Elongata, modice convexa, cæruleo-nigra, nitida, thorace rubro, elytris fere æquilato, utrinque intrà latius longitudinaliter excavato; elytris punctato-striatis, metallico-cæruleis. Long. 3 *lin.*

Hab.: Para.

Front concave; antennæ equal in length to the head and thorax, third joint more than twice as long as the second, fourth and fifth equal, each shorter than the third. Thorax nearly twice as broad as long, sides straight and parallel on their basal half, rounded and converging from the middle to the apex, anterior angles not produced, sub-acute, hinder angles slightly produced, acute; upper surface deflexed on either side in front, remotely punctured, anterior and lateral borders narrowly edged with piceous, basal lobe also piceous; on each side near the lateral margin is a broad longitudinal depression, the surface of which is coarsely variolose-punctate. Scutellum not broader than long, pentagonal, its apical angle obtuse. Elytra slightly broader than the thorax, sides parallel, apex regularly rounded, apical border distinctly serrate; upper surface moderately convex, minutely granulose-reticulate, regularly punctate-striate, humeral callus thickened.

The much more elongate form will distinguish this insect from *C. laticollis*, the only species with which it can be confounded.

CHARISPA ELONGATA.

Elongata, angustata, nigro-cærulea, nitida, thorace rufo, apice plagâ trigonatâ nigrâ, elytris abdomineque metallico-cæruleis. Long. 3½ *lin.*

Hab.: Rio Grande; in my own collection.

Front concave; antennæ longer than the head and thorax, third joint equal in length to the first and second, fourth and fifth, each one-third shorter than the third, equal. Thorax broader than long, sides straight and nearly parallel, very slightly converging from the base to beyond the middle, thence rounded and converging to the apex, anterior angles obtuse, hinder acute; disc not excavated on the sides, the latter distinctly margined; surface remotely punctured, apex with a large triangular black patch which extends entirely across the apical border, and backwards for one-fourth the length of the disc; basal lobe piceous, separated from the disc by a transverse groove. Scutellum scarcely longer than broad, sub-pentagonal, impressed near the apex by a transverse groove. Elytra broader than the thorax, parallel, narrowly rounded and distinctly serrate at the apex, the extreme apex obtuse; upper surface minutely granulose, regularly punctate-striate.

The narrow elongate form will at once separate this species from its congeners.

CHARISPA CÆRULESCENS.

Sub-elongata, cæruleo-nigra, nitida, suprà (antennis exceptis) metallico-cæruleus, thorace transverso, utrinque intra marginem longitudinaliter excavato, ad latera et ad basin foveolato-punctato, disco fere impunctato; elytris regulariter punctato-striatis, apice obsolete denticulatis.

Long. 3 *lin.*

Hab.: Bahia.

Front concave; antennæ one-third the length of the body, third joint nearly equal in length to the first and second, fourth and fifth nearly equal, each one-third shorter than the third. Thorax nearly one-third broader than long, sides straight and parallel at the base, slightly sinuate at the middle, thence rounded and converging to the apex, anterior angles obtuse, hinder acute; surface within the sutural border broadly excavated from the base to the middle, excavated portion and the basal half of the disc impressed with large round variolose punctures, rest of the surface nearly free from punctures; basal lobe separated from the disc by a transverse groove. Scutellum broader than long, pentagonal, all its angles obtuse, surface smooth, impressed with two transverse grooves. Elytra broader than the thorax, sides parallel, apex regularly rounded, apical border obsoletely serrulate, above minutely granulose-reticulate, their colour deeper and brighter than the thorax, regularly punctate-striate.

Genus *CEPHALOLEIA.*

CEPHALOLEIA EMARGINATA.

Elongata, nigra, nitida, suprà cærulea, antennis robustis, nigris; thorace sub-remote varioloso-punctato, margine antico utrinque ad latus emarginato; elytris parallelis, apice minute serratis, suprà modice convexis, utriusque infra basin excavatis, regulariter punctato-striatis.

Long. 2—2½ *lin.*

Hab.: Para, Santarem.

Front concave, space between the antennæ occupied by a longitudinal ridge; antennæ equal in length to the head and thorax, robust, three lower joints nearly equal in length. Thorax rather broader than long, sides straight and nearly parallel, very slightly converging from base to apex, hind angles acute; anterior margin distinctly notched on either side close to the anterior angle, the latter incurved, obtuse; placed in the middle of each notch is a small tubercle, only visible under a deep lens; upper surface shining, impressed with large, round, variolose punctures, remote on the disc, rather more crowded on the sides. Scutellum transverse, subpentagonal, lateral angles obtuse, the apical one slightly produced, acute. Elytra broader than the thorax, parallel, rounded, and converging near the apex, the latter obtuse, apical border minutely serrate; upper surface moderately convex, smooth, impressed on the basal half with fine, irregular, transverse strigæ; regularly but not coarsely punctate-striate, interspaces not thickened. Apical segment of abdomen broadly truncate-emarginate, the emargination occupying nearly the whole width of the apex.

CEPHALOLEIA CÆRULEATA.

Sub-elongata, subtus nigra, suprà metallico-cærulea, antennis nigris, thorace transverso, lateribus rectis, parallelis, apice rotundatis, angulo antico acuto, dorso foveolato-punctato, disci medio fere impunctato; elytris thorace paullo latioribus, parallelis, regulariter punctato-striatis.

Long. $2\frac{3}{4}$ *lin.*

Hab.: New Friburg, Brazil. A single specimen in my collection, formerly in the possession of the late A. Deyrolle.

Head coarsely punctured, space between the eyes slightly raised, its surface flattened; antennæ half the length of the body, scarcely thickened towards the apex, basal joint slightly thickened, third nearly one-half longer than the second. Thorax one-third broader than long, sides straight and parallel, slightly sinuate just in front of the hinder angle, suddenly rounded and converging at the apex, anterior and posterior angles acute, the latter slightly produced laterally; anterior margin armed on either side, a short distance within the anterior angle, with a short obtuse tooth; upper surface smooth and shining, closely covered on the sides with large round foveæ, disc nearly impunctate. Scutellum pentagonal, not broader than long, its apical angle very acute; surface smooth, impressed towards the apex with two transverse foveæ. Elytra broader than the thorax, the sides parallel, apex obtusely rounded; above moderately convex, somewhat flattened on the disc, transversely wrinkled at the base; on each elytron just within the humeral callus is an ill-defined oblong protuberance, the space between the latter and the suture indistinctly excavated; granulose-reticulate, strongly punctate-striate, interspaces thickened on the sides and apex. Apical segment of abdomen rounded, slightly sinuate on either side.

Genus *DEMOTISPA*.

DEMOTISPA ELEGANS.

Late oblonga, depressa, rufa, nitida, antennis, basi exceptis, nigris; elytris metallico-cyaneis. *Long.* 3 *lin.*

Hab.: Ecuador. Collected by Mr. Buckley.

Head smooth; antennæ half the length of the body, two basal joints rufo-piceous. Thorax transverse, equal in breadth to the elytra, sides rather broadly margined, rounded and converging from the base, more quickly rounded at the apex, anterior and posterior angles obtuse; upper surface smooth, impunctate, indistinctly excavated transversely at the base and apex; basal margin narrowly edged with piceous. Scutellum rather broader than long, pentagonal, its apical angle obtuse. Elytra broadly oblong, sides slightly rounded, broadly margined, apical border finely serrate. Upper surface depressed, excavated on either side just below the basilar space, regularly punctate-striate.

(To be continued).

NOTES ON BRITISH *HOMOPTERA*, WITH DESCRIPTIONS OF ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

(concluded from page 29).

TYPHLOCYBIDÆ.

6. TYPHLOCYBA AUROVITTATA.

Anomia aurovittata (Fieb.), *sec.* Lethierry, *in litt.*

Slender, dingy yellowish-white and golden. *Crown* yellow, obtusely produced. *Pronotum* quite one-half longer than the head, rounded in front, posterior margin sub-truncate, disc pale in the middle, on each side of which is a longitudinal, broad, yellow vitta, sides pale. *Scutellum* yellow. *Elytra* narrow, broadly dingy yellowish-white on the costa and claval suture, almost as far as the membrane, on the middle of the *corium* a golden-yellow vitta, widening as it proceeds, extends from the base almost to the membrane; *clavus* golden-yellow; *membrane* fuscous, the colour extending backwards a little beyond the base of the cells on to the corium as blotches, the largest of which is next and extends on to the apex of the clavus; nerves pale yellow. *Wings* transparent, the two upper nerves slightly fuscescent. *Legs* pale yellow, *claws* of the *tarsi* black.

Under-side and *abdomen* black, the segments of the latter with whitish margins.

Length, fully 1½ line.

Somewhat like *T. tenerrima*, but distinguished by the shorter and less-rounded head, by the two vittæ on the pronotum, by the yellow colour—notably of the vittæ of the elytra—being of a deeper hue, and by the fuscous membrane with pale nerves.

An example of this species has been identified by M. Lethierry as *Anomia aurovittata* (Fieb.). It does not appear to have been described.

I beat three or four examples, on 4th November, 1866, from hedges composed of maple, hawthorn, hazel, &c., in a lane near Eltham, Kent.

9. TYPHLOCYBA GRATIOSA.

Typhlocyba gratiosa, Boh., Vet. Ak. Handl., 121, (1853); J. Sahlb., Not. Fenn., xii, 179, 8 (1871). *Typhl. suturalis*, Flor, Rhyn. Liv., ii, 634, (1861); Kirschb., Cicad., 186, 22 (1868).

Pale ochreous. *Crown* obtusely produced in front. *Pronotum* twice as broad as long, nearly twice the length of the crown, the base slightly emarginate. *Elytra—clavus* fuscous-brown, sometimes pale, infuscated; *corium* whitish-ochreous, hyaline, with yellowish nerves, apical cells wholly infuscated, with two or three more or less long, fuscous dashes extending backwards on to the corium. *Wings* hyaline, nerves yellowish. *Legs* pale yellow, *claws* of the tarsi fuscous.

Length, 1½ line.

Found at the end of June on beech trees at Birch Wood, and in July on palings under beeches at Blackheath.

10. Typhlocyba lactea.

Anomia lactea, Leth., Hém. Nord, 58 (1869); 2 edit. 74 (1874).

Milk-white, immaculate. *Head* short, much rounded in front. *Pronotum* twice as long as the head, posterior margin slightly emarginate. *Elytra* milk-white, sub-opaque throughout, anterior margin very narrowly reddish, nerves slightly yellowish. *Wings* white, diaphanous, iridescent. *Legs* yellowish.

Abdomen yellowish-white. Length nearly 1½ line.

Like *T. rosæ*, Lin., but distinguished by its purer white colour, which at once attracts attention, the somewhat shorter and broader elytra, &c.

Ten years ago I had in my garden a seedling cherry tree, and this species was found in all stages of growth on the under-side of the leaves during July and August. I intended to describe it under the name of *T. cerasi*, but M. Lethierry informs me that it is his *A. lactea*, described as above stated.

12. Typhlocyba alneti.

Cicadula alneti, Dahlb., Vet. Ak. Handl., 181, (1851). *Typhl. alneti*, J. Sahlb., Not. Fenn., xii, 181, 10 (1871). *Typhlocyba coryli*, Toll., Stett. Ent. Zeit., xii, 70, 12, t. i, fig. 6 (1851); Flor, Rhyn. Liv., ii, 404, 15 (1861); Kirschb., Cicad., 184, 16 (1868).

Pale yellowish, very glossy. *Crown* lunate in front. *Pronotum* nearly twice the length of the crown. *Elytra* hyaline with paler nerves, the 1st apical cell small, the 4th obliquely truncate at the base and extending further back than the others. *Wings* hyaline with concolorous nerves, the 2nd transverse one very oblique, the 2nd longitudinal one much nearer to the 3rd than to the 1st. *Legs* pale yellow, *claws* of the tarsi slightly infuscated.

Abdomen above slightly infuscated. Length 1½ line.

Resembles *T. rosæ*, Lin., but differs in the proportions of the apical cells of the elytra, in the obliqueness of the 2nd transverse nerve, in the proximity of the 2nd to the 3rd longitudinal nerve of the wings, and in the form of the genitalia.

Not scarce on alder trees at Lewisham, in August.

14. Typhlocyba rosea.

Typhlocyba rosea, Flor, Rhyn. Liv., ii, 403, 14 (1861); J. Sahlb., Not. Fenn., 183, 12 (1871). ? *Typhl. roseipennis*, Toll., Stett. Ent. Zeit., xii, 70 (1851).

Pale yellowish-white, with a roseate flush. *Head*, *pronotum* and *scutellum* with two continuous reddish vittæ extending through them, diverging as they proceed. *Head* short, sub-lunate. *Pronotum* twice as long as the head, posterior margin slightly emarginate. *Elytra*: apex broadly rounded; upper and lower margins, including the *clavus*, slightly infuscated, with a more or less rosy tinge; in the middle a transparent vitta extends from the base to the apex; the longitudinal nerves of the corium on the apical half, and the base of the apical cells rosy, otherwise the nerves are pale. *Wings* opaline. *Legs* pale yellow, apex of the *tibiæ* and joints of the *tarsi* infuscated. Length, 1¼ line.

The species, according to descriptions, varies in colour; in the ♂ the corium being sometimes wholly, and the clavus broadly, testaceous; in the ♀ the corium has usually a narrow roseate vitta on the inner side, but sometimes it is immaculate.

Typhlocyba roseipennis, Tollin, is possibly this species, but the neuration of the elytra and wings not being given, certainty cannot be insured.

I have one example, ♀, taken from a fir tree *(Pinus sylvestris)*, at West Wickham Wood, April 19th, 1867; doubtless a hibernated individual.

Lee, S.E.: *June* 1st, 1875.

Postscript.—*Eupteryx notatus*, Curt. (No. 2 *ante*), *Typhlocyba Wallengreni*, Stål. I have seen a few examples taken by Mr. B. Cooke "on Holyhead Island, 11th October last, jumping about among gorse, heath, grass, &c., a few hundred yards from the sea-side."

Eupteryx abrotani (No. 3 *ante*), previously found on *Artemisia abrotanum*, has recently been taken by Mr. Scott, in Hampshire on *Artemisia maritima;* and the occurrence of the species on two species of *Artemisia* having revived my original suspicion that it might be *Typhlocyba artemisiæ*, Kbm. (Cicad. 190, 31), I have again turned to the description; but the words "die Decken mit zerstreuten sehr erloschenen "schwärzlicher *Puncten* besprengt," still do not appear to be applicable to our species, in which the dark markings of the elytra are in the form of distinct dashes. *Typhl. adspersa*, H.-Schf. (F. G., 164, 12), which, according to the description and figure, has small fuscous *dots* on the elytra "—punctis parvis rotundis fuscis—," and, according to Kirschbaum, resembles *T. artemisiæ*, appears to me to be still less like *E. abrotani;* therefore, at present, I must hold the latter to be distinct. It is unknown to Dr. J. Sahlberg and M. Lethierry.

June 26th, 1875.

Since writing the foregoing, I have seen, in the collection of Dr. J. A. Power, four examples, all ♂, of a *Typhlocyba*, taken at Esher,

in the autumn of 1866, which is certainly *Cicada tiliæ*, Fallén. It has been rarely noticed by authors; I can only find it cited by Dr. J. Sahlberg (who gives it doubtfully—"*verisimiliter*"—as a synonym of *T. blandula*), and by M. Lethierry. It is all but identical in marking with *T. blandula*, but differs in having the tarsi of the third pair of legs wholly black, giving the insect a very remarkable character. Flor says (Rhyn., Livl., ii, 401) that in *T. blandula*, ♂, all the three joints of the hinder tarsi, except the base of the first, are often black. In Dr. Power's examples the first joint like the others is wholly black. Assuming for the present that it is a distinct species, the synonymy will be as follows:—

TYPHLOCYBA TILIÆ.

Cicada tiliæ, Geoff., Ins., i, 426, 24 (*sec.* Fall., *l. c.* infra); Fall., Hem. Succ., ii, 57, 55 (1826). *Typhlocyba blandula*, var., J. Sahlb., Not. Fenn., xii, 184, 13 (1871). *Zygina tiliæ*, Leth., Hém. Nord, 2 ed. 77 (1874).

15, Belgrave Terrace, Lee, S.E.:
4th August, 1875.

Capture of Mesovelia furcata, Muls.—It has fallen to the lot of Dr. Power to take one of the rarest, if not the rarest, species of *Hemiptera-Heteroptera* belonging to Britain, if not to Europe. The only specimens of *Mesovelia furcata* previously known to me were two, viz.: that described by MM. Mulsant and Rey in Opusc. Ent. in 1852, and that in the possession of Mr. E. Brown of Burton-on-Trent, captured several years ago near that town. The specimens, two in number, taken by Dr. Power are without the membrane, so that the inference is the season was a little too early. He has also taken a few specimens of the pupa, which at first sight I thought might be the imperfect form of the creature, but subsequently, through the Doctor's kindness, having been directed to the spot, I was fortunate to take it in its stages of larva, pupa, and imperfect imago. It is exceedingly active in the net, and what is more, it is difficult to see.—JOHN SCOTT, 37, Manor Park, Lee: *August*, 1875.

Notes on Mediterranean Hemiptera-Heteroptera.—While on the Mediterranean Station, on board H. M. S. "Swiftsure," I devoted most of my limited spare time to collecting insects, *Coleoptera* being my principal quest. I did not, however, neglect to secure all the *Hemiptera* which came in my way; and my somewhat unexpected return home having given me an opportunity of inspecting my captures (consigned to the care of my friend Mr. G. C. Champion), I have drawn up the following notes, which may possibly be of interest to Hemipterists. My very slight acquaintance with the order must be an apology for all deficiencies in this paper.

The insects were all determined by Mr. E. Saunders, to whom I beg to tender my sincere thanks.

Omitting a few species of universal distribution, my captures (made between July, 1874, and March, 1875) include:—*Brachypelta aterrima*, Forst., common in dry vegetable refuse, &c., at Malta: *Macroscytus brunneus*, Fab., Gibraltar, not rarely under stones: *Geotomus punctulatus* and *lævicollis*, Costa, and a new species? commonly: *Cydnus fuscipes*, Muls. and Rey, and *Ochetostethus nanus*, H.-Schäff., abundantly, at Malta, by cutting tufts of herbage: *Odontoscelis dorsalis*, Fieb., Gibraltar, commonly, usually found crawling in dusty roads: *Ælia Burmeisteri*, Küst., Taormina (Sicily), Cagliari, and Port Mahon; occasionally by sweeping: *Æ. cognata*, Fieb., by sweeping, at Palermo: *Menaccarus*, n. sp.? Balearic Isles: *Sciocoris maculatus*, Fieb., *umbrinus*, Wolff., *macrocephalus*, Fieb., *angustipennis*, Muls. and Rey, and other spp., commonly, at roots of herbage, at Malta: *S. Helferi*, Fieb., Port Mahon, by beating herbage: *Eurygaster niger*, Fab., Malta, rarely: *Odontotarsus grammicus*, Lin., Port Mahon and Corfu, and *O. caudatus*, Klug, Malta; both rarely under stones: *Rhaphidogaster griseus*, Fab., Port Mahon, not rarely under loose willow bark: *Carpocoris lunula*, Fab., Cagliari and Malta; *baccarum*, Lin., Gibraltar; and *verbasci*, De Geer, Port Mahon; all not rare by sweeping: *Peribalus vernalis*, Wolff, Malta: *Brachynema cinctum*, Fab., Cagliari and Port Mahon, abundant on *Suæda*: *Scutellera lineata*, Lin., Tangier and Gibraltar, by sweeping, and on flowers: *Holcostethus congener*, Fieb., Cagliari; *sphacelatus*, Fab., Gibraltar; and *jani*, Fab., Taormina; all by sweeping: *Nezara prasina*, Lin., Tangier, Cagliari, and Corfu, by sweeping, but rarely: *Eysarcoris misellus*, Stål, Port Mahon, by beating herbage: *Strachia picta*, H.-Schäff., Port Mahon, Cagliari, Gibraltar, &c.; abundant on Crucifers, and very variable: *S. ornata*, Lin., Malta and Gibraltar, by sweeping: *Glypheria æruginosa*, Cyrill, Malta, under stones: *Cryptodontus tuberculatus*, Rossi, one in a tuft of grass at Gibraltar: *Ancyrosoma albilineatum*, Fab., Tangier, Palermo, Taormina, Corfu, &c., by sweeping, and at roots of *Verbascum*: *Trigonosoma Desfontainesi*, Fab., once, by sweeping, at Cagliari: *Trigonosoma*, n. sp.? Patras: *Gonocerus insidiator*, Fab., Gibraltar, by sweeping: *Verlusia sinuata*, Fieb., Port Mahon, by beating herbage: *V. sulcicornis*, Fab., Malta, commonly on walls, &c.: *Centrocarenus spiniger*, Fab., Gibraltar, under stones: *Strobilotoma typhicornis*, Malta, and *Dasycoris dentator*, Fab., Corfu, by cutting tufts of herbage: *Enoplops cornutus*, Hoff., Tunis, not rarely under stones, &c.: *Pseudophlæus Waltli*, H.-Schäff., Gibraltar, and *P. auriculatus*, Fieb.? Malta and Cagliari; commonly under stones: *Stenocephalus neglectus*, H.-Schäff., Malta: *Camptopus lateralis*, Germ., Cagliari, by sweeping; a very fragile insect: *Phyllomorpha laciniata*, Vill., a few specimens of this extraordinary little creature (which, when feigning death, exactly imitates a small, withered, spiny seed-vessel of some plant) in a tuft of *Parietaria* at the foot of the Rock of Gibraltar: *Therapha hyoscyami*, Lin., Gibraltar, by sweeping *Ononis*: *Micrelytra fossularum*, Rossi, Gibraltar: *Coryzus truncatus*, Ramb., and *errans*, Fab., Taormina, Gibraltar, and Malta: *Brachycarenus tigrinus*, Schill., Tangier, by general sweeping: *Prionotylus Helferi*, Fieb., Gibraltar and Tangier, under stones: *Pyrrhocoris apterus*, Lin., abundant (and generally gregarious) in every locality I have visited: *P. ægyptius*, Lin., with the preceding, but less numerous: *Plociomerus annulipes*, Bær., Tunis, under stones: *Lygæus militaris*, Fab., Malta and Gibraltar, common, usually flying in the sunshine: *L. saxatilis*, Scop., common on flowers, Rock of Gibraltar; and *L. equestris*, Lin., Patras, under stones: *Lygæosoma punctato-guttatum*, Fab., Malta

and Gibraltar, &c.; abundant on *Verbascum* and under stones: *L. reticulatum*, H.-Schäff., Malta, Gibraltar, Palermo, Corfu, &c., generally distributed, and common under stones, &c.: *Calyptonotus leucodermus*, Fieb., and *C. Rolandri*, Lin., Malta, on stone walls; and a pretty new species from the same island: *Emblethis arenarius*, Lin., Malta and Gibraltar, and *E. pilifrons*, Zett., Malta, not rarely at roots of herbage: *Gonionotus marginipunctatus*, Wolff, Tunis, under stones: *Dieuches pulcher*, H.-Schff., *Rhyparochromus colon*, Put., and *niger*, Fieb., and *Calyptonotus phœniceus*, Rossi, all common, at Corfu, by cutting tufts of herbage in January: *Neurocladus brachyidens*, L. Duf., Gibraltar, among grass: *Beosus saturnius*, Rossi, Malta, and *B. quadratus*, Fab., Corfu, both commonly under stones: *Nysius graminicola*, Kolen., Gibraltar and Port Mahon, by sweeping: *Nysius senecionis*, Schill., common in a heap of cut weeds at Malta: *Hyalochilus cordiger*, Fieb., Gibraltar, by sweeping: *Piezoscelis staphylinus*, Ramb., Gibraltar, under stones: *Ischnocoris hemipterus*, Sahlb., Corfu, in tufts of herbage, both developed and undeveloped: *Scolopostethus nervosus*, Fieb., Gibraltar, under stones; and n. sp., Malta: *Drymus*, n. sp., Tunis: *Oxycarenus lavaterœ*, Fab., in compact clusters, numbering many thousands of individuals in each, on the branches of road-side poplar-trees at Cagliari; also one or two stray specimens at Tunis: *Ophthalmicus siculus*, Fieb., Corfu, and *albipennis*, Fab., Corfu and Gibraltar; common in tufts of herbage: *O. pygmœus*, one specimen, Gibraltar: *Lamprodema maurum*, Fab., Malta and Gibraltar, and *Plinthisus flavipes*, var., Fieb., Gibraltar and Corfu; both not rare under stones: *P. longicollis*, Fieb., Gibraltar: *P. bidentulus?* Corfu: *Microplax plagiatus*, Fieb., Gibraltar, abundant in sandy places at roots of herbage: *M. interruptus*, Fieb., and *Aoploscelis bivittata*, Cost., Corfu, in tufts of grass, &c.: *Macropterna convexa*, Fieb., Cagliari, by sweeping: *Campylostira ciliata*, Fieb., Patras: *Monanthia nassata*, Put., Malta, under stones: *M. geniculata* and *Wolffi*, Fieb., Port Mahon; *M. liturata*, Fieb., and *ragusana*, Küst., Gibraltar; and *M. aliena*, Fieb., Taormina, all by sweeping: *Laccometopus teucrii*, Host., *Dictyonota Aubœi*, Sign., and *D. marmorea*, Bær., by sweeping at Cagliari: *Lopus lineolatus*, Brullé, common on flowers of "squill" (*Urginea*) in February at Malta: *Auchenocrepis Foreli*, Muls., Tangier, by sweeping: *Orthocephalus flavimarginatus*, Cost., and *O. minor*, Cost. (both sexes of each), Malta, not rarely under stones: *Xenocoris venustus*, Fieb., and *Lygus campestris*, Fab., Gibraltar, by sweeping; *Brachycerœa hyalinipennis*, Klug, Tangier: *Piezostethus bicolor*, Scholz, Corfu, in tufts: *Nabis longipennis*, Cost., Port Mahon, by beating herbage: *Emesodema domesticum*, Scop., Malta and Butrinto (Albania), under stones: *Coranus griseus*, Rossi, Gibraltar and Port Mahon, not uncommon under stones; in its earlier stages, this insect covers itself with dust, &c., *à la Reduvius*: *Pirates strepitans*, Ramb., Butrinto, and *P. stridulus*, Fab., Corfu, under stones: *Harpactor hœmorrhoidalis*, Fab., Malta, not rare under stones and herbage: *Reduvius testaceus*, H.-Schäff., rare, at Malta; possesses a very marked power of stridulation: *Oncocephalus squalidus*, Rossi, Tunis, in sandy places: *Metastemma guttula*, Fab., Gibraltar, Tangier, and Tunis, at roots of herbage: *M. sanguineum*, Rossi, Corfu, not rarely, by cutting tufts: *Velia rivulorum*, Fab., on running water, Palermo and Malta: *Naucoris maculatus*, Fab., among water-weed at Tangier.—James J. Walker, R.N., H. M. S. "Swiftsure," Plymouth: *May 17th*, 1875.

Occurrence in the north of Ireland of the true Otiorhynchus monticola, Germ.—On the 16th of June last, Mr. Allin and I captured at Kilkeel, County Down, four examples of an *Otiorhynchus*, evidently referable to *monticola*, Germ., which differs from our common northern species, *blandus*, Gyll., in being smaller, with the more visible elytral striæ extending to the apex, the rostrum merely punctate (not punctate-rugose), &c. These Irish specimens belong to the variety having the elytra more deeply striate, and with rugulose interstices; they are very small (6 millim.)—of the same size as individuals from the Pyrenees. They were found by grubbing at the roots of *Thymus serpyllum*, on the coast. The occurrence of a mountain species on the coast is very strange, but a parallel instance has been recorded by the Rev. T. Blackburn in Ent. M. M., xi, p. 112, where *Nebria Gyllenhali* and other mountain species are noted as having been captured on the coast in Shetland.—G. C. Champion, 274, Walworth Road, London: *August 14th*, 1875.

Note on a few Irish and Welsh Coleoptera.—The following local species, amongst others, met with by Mr. Allin and myself, during a short stay last June, in North Wales, and at Newcastle, and in the North of Ireland, seem worth recording. I think, without exception, the latter locality is about the most unproductive I have yet visited. Scarcely anything but the commonest species (and those very rarely) occurred. Unfortunately, during our stay, both in Wales and in Ireland, it was wet nearly every day, and this, with the continual mists on the mountains, stopped our working long. I note *Pterostichus æthiops*, common under stones on Snowdon: *Harpalus neglectus*, on the sand-hills, Rhyl: *Bembidium saxatile*, on the coast at Kilkeel (County Down): *Phytosus spinifer*, on the coast at Newcastle (County Down): *Oxypoda rupicola*, Rye, in moss on summit of Snowdon, and also under stones on summit of Slieve Donard (County Down): *Homalota eremita, clavipes, tibialis*, &c., in moss on mountain tops, in same localities as preceding: *H. valida*, Sharp, and *nitidula*, summit of Slieve Donard: *Mycetoporus tenuis* (Sharp), not rare in moss on summit of Snowdon: *Staphylinus erythropterus*, on the coast of Kilkeel: *Anthophagus alpinus*, on summit of Slieve Donard and Snowdon: *Geodromicus globulicollis*, common, and *Acidota crenata*, rarely, in moss on summit of Snowdon: *Homalium riparium*, abundant on coast at Newcastle: *Saprinus maritimus*, coast, Newcastle: *Cryptohypnus maritimus*, Lough-side, Llanberis: *Hydrocyphon deflexicollis*, on alders, Capel Curig: *Otiorhynchus maurus*, var., Slieve Donard: *Mesites Tardii*, in mountain ash, Tollymore Park (County Down): *Chrysomela cerealis* (a beautiful object when crawling about in the sunshine), not uncommon, amongst stunted wild thyme on a slope of Snowdon, at an elevation of about 2800 feet, &c.

I believe one or two of the above species have not hitherto been recorded out of Scotland.—Id.

Prionoplus reticularis, White, in England.—A specimen of this fine New Zealand Longicorn flew into the bar of the "Ship," in the Kennington Road, on the evening of the 26th inst., and was placed under a tumbler as a strange "bug" for me; when I saw it, I recognized it as one of the *Prionidæ*, not found in Europe, and upon looking over the New Zealand Longicorns, found it to be the above insect.

Although the North American species *Monochamus dentator*, and I believe others, have been taken here, imported probably in the larval or pupal state, I am not aware of the occurrence before of this insect in Britain.

The insect is alive and very active; while I am writing this, it has feasted on some decayed apple, and seems quite content with its home (a Lepidopterous breeding cage). Nothing, I believe, is known of the habits of the early stages of this insect. —C. G. HALL, Kennington, S.E.: *July*, 1875.

Capture of Anisoxya fuscula, Ill.—Yesterday I beat a single example of this rarity from an elm tree in this parish. In the net it looked like a small *Anaspis lateralis*, but it had a brownish hue, and did not behave like an *Anaspis*, so I resolved to take it. If it had been a better adept at mimicry, it would have illustrated the survival of the fittest, for it would have gone the way, out of the net, of most species of *Anaspis;* but failing in exact representation, it has increased the number of the illustrious dead. Its resting place on the leaf of an elm I take to have been casual, as the species is probably a feeder on fungus or rotten wood. I afterwards beat another example out of white-thorn branches which had been used to stop a gap in a hedge close by.—J. W. DOUGLAS, Lee: *7th August*, 1872.

Note on ravages of Otiorhynchus sulcatus.—This weevil is a great pest in nearly all the vineries about here, both in the perfect and larval states; the larvæ destroying all the fibrous roots, and the beetles sometimes eating the leader of the vines completely off, which, in a young cane, is a serious injury. I have found numbers of them in the garden; so no doubt they have been brought into the vineries with the soil. In some vineries close to us, the proprietors took out the whole vine border and put a fresh one in, only to find things as bad as ever. Hand picking at night seems to be the only resource; our gardener catches as many as 30 or 40 in a night. But, of course, we cannot do that with the larvæ, or it would disturb the vines too much.—H. H. BOLTON, Jun., Newchurch: *July*, 1875.

Meloe brevicollis near London.—I have recently taken this rare species at Dartford. It has, I believe, been found near Reigate; but the majority of the few British specimens are from the neighbourhood of Plymouth.—ERNEST S. SPIERS, 21, Bernard Street, Russell Square, W.C.: *July*, 1875.

Occurrence in Britain of the galls of Andricus glandium, Gir.—I have discovered in Cadder Wilderness, and at Ardlui, Loch Lomond, two or three galls of *Andricus glandium*, Giraud, Verh. zool.-bot. Gesellsch. Wien, 1859, ix, p. 355; Mayr, Die Mitteleuropäischen Eichen-gallen, p. 66, pl. vii, f. 92. My specimens were collected in early summer, and only have produced *Synergi* so far. The autumn is the best time to search for the galls.—P. CAMERON, Jun., 136, West Graham Street, Glasgow: *23rd July*, 1875.

Vanessa Antiopa at Chertsey.—I beg to inform you that on the 10th of this month I caught, on St. Ann's Hill, Chertsey (Surrey), on a windy and cloudy afternoon, a splendid specimen of *Vanessa Antiopa*.—ALEX. WAILLY, 110, Clapham Road, S.W.: *21st August*, 1875.

Description of the larva of Xylomiges conspicillaris.—I am indebted to Messrs. Farn and Bird for the opportunity of describing the larva of this species (locality, near Dartford).

Larva stout, cylindrical; incisions slightly compressed. Head hemispherical, shining, rather flattened in front. Colour dull greenish-brown with an ochreous tinge, the sides darker, all the markings faintly indicated. An indistinct grey dorsal chain pattern, each ring enclosing a grey spot. A wide, reddish-ochreous, spiracular band, the sides above it broadly shaded with grey, spiracles white, edged with black, *usual spots white surrounded with grey*. Head reddish-ochreous or pinkish-brown, reticulated with dark brown, a sepia-coloured dash on the inside of each lobe. Belly dull greenish, the sides dusted with greyish-brown. When young, the larva has a prominent orange spiracular band. Feeds on *Lotus corniculatus*, *Polygonum aviculare*, and various low plants, and is full-fed towards the end of June.—C. Fenn, Lee: *July*, 1875.

Description of the larva, &c., of Cleora glabraria.—For some acquaintance with this species in the larval state I have been indebted to Mr. B. Lockyer, who, on the 1st of June last, kindly sent me a larva, and on the 10th six others; and to these were added four more on the 22nd, from Mr. Tate of Lyndhurst; all of these having been found by him feeding on *Usnea barbata* growing on oaks in the New Forest.

With the exception of the first individual, which died the morning after its arrival, these larvæ were very active, and fed well on the extreme points of the lichen, eating them down rapidly for about an eighth of an inch, and sometimes eating off the nodes, and more rarely the cuticle from the larger branches. I was attentive to keep their food changed, and to moisten it with water thrice a day, as I soon found, if it became at all dry, they were unable to feed.

One larva was contracting for its final change when it arrived, but had not strength to complete it; on the 16th of the month another had apparently ceased to feed, and would no longer remain on the lichen, but would mount to the gauze cover of its cage, persistently returning to it as often as removed; various substances and soils were supplied to induce it to spin up, but in vain,—however, after the lapse of some days, the mystery of its strange behaviour was cleared up by the appearance, close by it, of an ichneumon cocoon, or rather batch of four or five small cocoons spun on the gauze: another, later on, was victimized in precisely the same manner, while three others proved healthy and vigorous, retiring, when full-fed, into the wet tree-moss kept beneath the lichens, where I observed they had each hollowed out a small cavity, which was kept in an oval shape by help of a few threads, rather far apart, spun across the opening; but these could scarcely be called cocoons, for, when looking about a week afterwards, on the 28th, for the pupæ, two of them rolled out into my hand on taking up the moss, so little coherence had these slightly-made puparia.

Of the remaining four larvæ, two pupated as above described, and two proved to be ichneumoned, one of these dying quite rigid, and the other lingering on, attached to the cocoon of its parasite, for some time after the pupæ had disclosed the moths, which proved fine specimens, appearing from July 11th to 21st.

The full-grown larva is nearly one inch in length, moderately slender, and of about uniform substance throughout, the head, a trifle less than the second segment, is a little flattened in front; the segments of the body very well defined, the thoracic ones as usual, each of the others having a wrinkle across the back at the distance of

one-third from the beginning, and three others near the end; the anterior legs developed in gradation, the shortest pair in front, the second pair a little longer, and the third pair the longest; the ventral and anal pairs well developed.

In colour the head is pale greenish-white in front, light glaucous-green at the sides, reticulated with whitish; near the crown, on each lobe, is a black streak undulating down to the antennal papillus, and bounding the whiter face from the greener side of the head; above the mouth is a triangular mark of blackish-brown atoms: the ground colour of the body generally is a pale blue-green, that of the back has a more lively green tinge, though so pale as to be a greenish-white; through the back can be distinguished the dorsal line by its bluer tinge, besides a small streak on either side of it anteriorly on each segment, excepting the thoracic, which are broadly divided with it; but the chief feature of the back is the row of black spots, viz.: one rather oblong spot on the whitest portion on each thoracic segment, and on the others an oblong spot just at the beginning, and another thicker, of a blunt spear-head shape, about midway towards the end of each segment, and a small spot on the anal tip,—these are upon the dorsal line; along the boundary of the whitish colour of the back runs the row of sub-dorsal black dashes; these are short and situated midway on the thoracic segments, and on the others are behind the first wrinkle extending nearly to the segmental division; these vary in individuals, being in some simple oblong dashes, while in others they appear open at one end, and in others again at both ends, suggestive of parallel streaks run together in the middle; but in all, each of these dashes is bounded below by a greenish-white dash of the same extent, followed by a group of two or three small angular black spots or streaks, amongst which is the spiracle, which, though appearing blackish, has a faint flesh-coloured centre; next runs the inflated greenish-white sub-spiracular stripe marked with a black dash at beginning of each segment, except on the anterior ones, which are marked in the middle with a squarish spot, and a small black spot is at the base of each anterior leg; the belly has a central faint greenish-white line with a black elongate mark on it at about the middle of each segment from the fifth to the ninth, both inclusive; a little more behind, on each side the central line, are a twin pair of black specks, and a couple of greenish-white spots on each side at the beginning of each of these segments; a very small black mark is at the inside base of each anterior leg: the anterior legs are glistening, the head and body are smooth without gloss: the tubercular dots are excessively small and dusky, each emitting a fine bristly hair.

The pupa measures about half-an-inch in length, and in its greatest diameter, at the ends of the wings, one-eighth of an inch; the eye-covers rather prominent, and the abdominal divisions deeply cut, the anal tip bearing a spike finely forked at its extremity: at the end of the first week the wings were olive-green, the other parts brown, the anal spike blackish; the whole surface glossy.—William Buckler, Emsworth: *July 30th*, 1875.

A new British Tortrix—Ablabia argentana, Cl.—On July 10th I found a pretty white moth, which was evidently a species new to our lists, flying amongst the grass on the side of a mountain in Athole, Perthshire, and having called the attention of my companions, Sir Thomas Moncreiffe and Mr. W. Herd, to it, we managed to secure a few more specimens. This moth, Sir T. Moncreiffe has since identified with

Hübner's fig. 86, *argentana*, Cl., and *gouana*, L., of Herrich-Schäffer, vol. iv, p. 177. I have not my copy of Herrich-Schäffer here, so cannot refer to his description, but our insect may be thus briefly described:—Exp. al. 10″–1′. Front-wings shining satiny-white with a very slight ochreous tinge along the costa and hind margin. Hind-wings very pale greyish-ochreous with some of the veins and hind margin very narrowly fuscous. The under-side of the front-wing is almost entirely black, except the tip, which is grey. The costa of the under-side of the hind-wing is also blackish.

Staudinger places *argentana* in the genus *Sciaphila*, Tr., section A, *Ablabia*, Stph., and gives its distribution as follows:—Germany, Alps, South-East France, Andalusia, and Russia. Like its congener *A. pratana*, the habits of *A. argentana* are more those of one of the Crambites than of a Tortrix.—F. Buchanan White, Rannoch: *July 26th*, 1875.

Is Larentia cæsiata double-brooded?—Mr. Hellins asks (E. M. M., xii, 7) whether *Larentia ruficinctata*, Gn., and *L. cæsiata*, Lang., are double-brooded, and this question seems to have given rise to some discussion—both public and private—amongst entomologists. In the South of England, and *in captivity*, very possibly both species may be made to produce two or even three broods in a year; but in Scotland, and in a state of nature, there does not, as far as I am aware, seem to be the slightest ground for supposing that either species has more than a single brood.

The earliest date on which I have seen *L. cæsiata*, appears, from my note-book, to be June 8th, and from then till the beginning of August it continues to appear from the pupa, whilst worn specimens may be found even as late as the beginning of September. July, however, is the chief month in which it occurs. The larva may be found up to the 3rd or 4th week in June.

The earliest date on which I have met with *L. ruficinctata* is the beginning of July, and from that time till the middle of August it may be found in good condition. Considering the high altitude at which it often occurs, it seems impossible that more than one brood in the year can be accomplished. The lowest locality in which I have seen it is 600 feet above the sea, and in a mountain glen; and I have met with it in various places at 1300, 1700, 2500, and up to nearly 3000 feet.

As to the food-plants of these species, Ling *(Calluna)* seems to be the chief food-plant of *cæsiata;* but it may be also found, not uncommonly, feeding in company with the larvæ of *ruficinctata*, upon *Saxifraga aizoides*. The great food of *ruficinctata* is undoubtedly the leaves of *Saxifraga aizoides*, though no doubt other Saxifrages would be readily eaten.

One word as to the name "*ruficinctata*." I am at a loss to know why this recent and inappropriate name has been adopted in Britain, when the much more applicable name, *flavicinctata*, Hb., has not only the priority, but has been much more greatly used in Britain. *(Ruficinctaria*, Gn., it should be remembered, is a variety of *salicata).*—Id.

The food-plant in Britain of the larva of Zelleria saxifragæ.—This larva is figured in the "Natural History of the Tineina" from specimens found in Switzerland feeding on *Saxifraga aizoon*. This is not a British plant, so when the *Zelleria* was found in Britain, it was evident that some other Saxifrage must serve as a food-

plant also. I suspected that *S. aizoides* would be the plant selected, and my suspicions were verified the other day by finding the larva on this Saxifrage, and also on *S. oppositifolia*. The larva of *Larentia flavicinctata* also feeds on these Saxifrages. I first found *Zelleria saxifragæ* in Braemar, and have since seen it in the following districts of Perthshire, viz.: Athole, Breadalbane, Rannoch, and Lomond. The larva is full-fed at the end of June, and the moth may be found in July and August, resting on, or flying amongst, the flowers of the Saxifrage, or more rarely at rest upon rocks.—ID.: *August 4th*, 1875.

Notes on Tortrices of the genus Cochylis.—My friend Mr. Barrett, in the February number (Vol. xi, p. 196) of this Magazine, quoting M. Jourdheuille, says of *Francillana*, "larva in dried stems of previous year's *Eryngium campestre*." As Mr. Barrett surmised, this information as regards *Francillana* is incorrect: the larva which feeds in the stems of *Eryngium* is *flagellana*, Dup.

Considerable confusion exists in Germany with regard to this species and its allies, and I would propose the following correction to Dr. Wocke's catalogue:

No. 859. SANGUINANA, Tr., viii, 116 (1830); Dup., ix, 259, 2; H.-S., iv, 182; Hein., 77. *Baumanniana*, Hübn., Tor., 148 (*nec* S. V.).

860. FRANCILLANA, F., E. S., p. 264; Don., Nat. Hist., x, t. 351, 1; Wood, 1152; Wilk., 312; *flagellana*, H.-S., 345, iv, p. 182.

862. FLAGELLANA, Dup., ix, 259, 6; H.-S., 95, iv, p. 182; Heyden, Ste. Z., 1862. *Francillana*, Hein., p. 80; *eryngiana*, Heyd., St. ent. Z., 1865, p. 100.

Sanguinana, Tr., is a very distinct species, which cannot be confounded with its allies, being distinguished by its larger size, greater breadth of wing, particularly wide fasciæ, and the presence of numerous metallic specks, especially on the edges of the fasciæ. It is recognizably figured by Hübner (as *Baumanniana*) and Duponchel, and, according to Treitschke and Von Heyden, the larva feeds in stems of *Eryngium* (if not confounded with that of *flagellana*).

Francillana, Fab., does not appear to be known on the continent, yet it is well figured by Herrich-Schäffer (fig. 345), but under the name of *flagellana*. It is indeed very much like *flagellana*, Dup., but it seems to have more elongated and pointed fore-wings; the two fasciæ are generally entire, they are, besides, rather broader than in *flagellana*, and are moreover dilated at, and produced along, the costa and inner margin; the costa at the base also appears to be more suffused with the dark colour.

Francillana, it appears, feeds in the seeds of carrot, and probably retires into the stems of the plant to hibernate, for it has also been bred from larvæ in the dried stems.

The *Francillana* of Von Heinemann (p. 80) is certainly *flagellana*, Dup., and he quotes, in error, the English authors. *Flagellana*, Dup., is unquestionably Von Heyden's *eryngiana*, and Duponchel's figure is very good. This insect is variable in its markings, it is exceedingly like *Francillana*, but the first fascia (and sometimes the second) is generally very distinctly interrupted at or before the costa, but at other times it is hardly so. The fasciæ are narrower, not, or only very slightly, dilated at the costa and inner margin. Herrich-Schäffer's fig. 95 is not good, being too pale.

The larvæ of *flagellana* feed in the stems of *Eryngium campestre*, several in the same stem. I have bred several moths from dried stems collected in the spring, the first appearing on the 26th of June, and the rest about the middle of July. I have still a number of living larvæ which show no sign of pupating. It is possible that this species feeds in the seeds, and M. Ed. Perris sent me, last autumn, a lot of seed heads inhabited by *Cochylis* larvæ, but I did not succeed in rearing them, neither have I noticed any traces of this larva when collecting the dried stems.

Dilucidana is very distinct from either *flagellana* or *Francillana*, the fasciæ are narrower, straighter, and more parallel, with the edges better defined, and not jagged, as in the other species: the first fascia is distinctly abbreviated near the costa, and the second is entire. This species appears quite unknown on the continent, and Von Heinemann gives it, in error, as synonymous with *Francillana*.

Dilucidana feeds in the stems of parsnip (*Pastinaca sativa*) and has also been bred abundantly from stems of *Heracleum sphondylium* by Mr. Wm. Machin.—E. L. Ragonot, 27, Rue de Buffon, Paris: *August*, 1875.

On the habits of Psecadia flavitibiella.—Professor Zeller has again met with this insect at Bergün, in the Grisons, but has been again unsuccessful in his attempts to discover the larva. With regard to the imago, he has observed that copulation takes place by day, during bright sunshine. The ♀ sits on some broad leaf, or on a grass stem, whilst the males fly about in search of her; so that by attentively watching the direction in which the males are flying, it is possible to discover the quiescent female. On the 2nd June Professor Zeller saw two males fluttering in the grass, and whilst catching them he observed a female on a grass stem: directly afterwards came two more males flying towards this female: these were boxed, and more were expected, the female being carefully left untouched on her grass stem. No more males coming up just then, Professor Zeller walked away a little distance: on returning, after an interval of a minute, he found the female already copulated, and another male, which had arrived too late, was about to fly away again, but was intercepted. As the ♀ had now lost her attracting powers, she and consort were both boxed; and in this way six males were obtained by means of one female; and had she been watched more closely, other males might also have been obtained.

Thalictrum minus occurs in the localities frequented by this insect, but it does not seem to be specially favoured by the imago, and, as already mentioned, the larva has hitherto escaped detection.—H. T. Stainton, Mountsfield, Lewisham: *August 17th*, 1875.

Description of the larva of Pterophorus rhododactylus.—On the 26th of May last, I and the Rev. T. W. Daltry, of Madeley, took the larvæ of *Pterophorus rhododactylus* rather freely; and as I am not aware of any previous description in this country, I have much pleasure in sending one.

Length about half-an-inch, and of tolerable bulk in proportion; body cylindrical and strongly attenuated towards the extremities; is considerably retractile, and when at rest has a dumpy appearance; the head is small, globular, smooth, and shining, about the same width, or perhaps very slightly narrower, than the second segment; the segmental divisions are distinctly marked; the skin soft, but has a slightly rough appearance, and is sparingly, though conspicuously, clothed with short hairs.

The ground-colour is a rather bright greenish-yellow, in some specimens yellowish-green; the head is greyish, with the cheeks and mandibles shining black. A very conspicuous purple stripe forms the medio-dorsal line,—from the 2nd to 6th segment this stripe appears as composed of round purplish marks joined at the segmental divisions, consequently the stripe is rather broad; on the remaining segments it is much narrower and more uniform, but equally distinct; the sub-dorsal and spiracular lines are yellow, but only faintly indicated; the segmental divisions are also yellow. The ventral surface and prolegs are uniformly dingy green or yellowish, according to the ground of the dorsal surface; legs black and shining.

The larvæ were found feeding on wild rose, beneath the leaf overlapping the rosebud, eating into the unexpanded bud from the side; others, however, were found feeding in similar positions at the tips of the young shoots. When full-grown those that have been feeding on the buds affix themselves to the side of the leaf close by the bud, and draw the leaf and the bud together by means of a few silken threads; the others draw together in a similar way several leaves at the end of the young shoot.

The pupa is about three-eighths to half-an-inch in length; pale green,—the wing-cases whitish,—the eye-antenna-and leg-cases, also the edging of the wing-cases, smoky-black.

On a subsequent visit to the locality (near Rochester) in the middle of July, I found a few of the pupæ, from which, in a few days, I reared some beautiful imagos of this lovely species. The moth first appears at the beginning of July, and continues to emerge throughout the month.—Geo. T. Porritt, Huddersfield: *August 3rd*, 1875.

The cycles of Entomology.—The late Mr. J. F. Stephens had a theory that Entomology, in England at least, ran in cycles; that is, that for periods of time attention was more devoted to one order of insects than to another. Of this, no one was better qualified than he to judge; for, being one of the few English Entomologists that possessed a collection of all the orders, which he liberally opened on one evening in every week to visitors, he was in a position to see how the current of collecting ran from time to time. He said, that, during a long course of years, the number of Coleopterists and Lepidopterists preponderated by turns; that at intervals, Hymenopterists and Dipterists appeared, and but rarely a collector of any other order. Since these pleasant and instructive meetings ceased, there have been no private general collections accessible to students, there has been no similar personal guage of the number of collectors or students of the several orders, and we have had to rely for such information upon the record of "The Entomologists' Annual." Judging by this, Coleopterists and Lepidopterists, for some years, ran almost *pari passu;* now, the ardour of both seems to have abated, the "Annual" itself has ceased to exist, in a great measure, for want of additions to record; and if the collecting of butterflies and beetles still goes on in Britain, new species are rarely found. It may be there are not many more to be discovered that are new to the country or to science, and considering the number that have been added during the last twenty years, the unknown quantity is not likely to be very great.

But with respect to other orders, considering the few collectors thereof that

have ever existed in Britain, and the usually desultory methods of collecting used, I cannot but think there is a good deal of work that should be done by the present generation. British *Hymenoptera*, *Diptera*, and *Hemiptera*, at least, want looking for, and our knowledge of species put more on the level of the continent. I wish I could see some young collectors coming into the field who would turn their attention to one or other of the neglected orders, which are interesting, not only on account of the number of species, but also the wonders of their œconomy. Abroad, a renewed attention is being devoted to *Hemiptera*, which is evinced by the publication of lists and descriptive works in Italy, France, Sweden, Denmark, and Finland. In Britain, at present, it is not so much the amount of material that is wanting, as the number of workers, both operative and scientific. Doubtless it is best when the out-door and in-door qualifications are combined in one individual, but often, by force of circumstances, it is not possible to get them thus united; and, besides, some men are naturally hunters pure and simple (or otherwise), and others take only to books and the lamp. I confess that it seems to me, without some such extension of Entomology is developed in Britain, the science, in the next generation, as far as our native insects are concerned, is likely to be in a very low condition; that even now the number of native workers does not fulfil the promise of former years; and that the cycle will be deficient in quantity, as well as quality, of added knowledge of our Insect Fauna.—J. W. Douglas, Lee: 31*st May*, 1875.

Reviews.

The Naturalist: Journal of the West Riding Consolidated Naturalists' Society. New Series. Edited by Chas. P. Hobkirk and G. T. Porritt, F.L.S. No. 1, August, 1875. 8vo., pp. 1—16. Huddersfield: R. Brown.

The numerous local Yorkshire Natural History Societies and Field Clubs have made several efforts to sustain a journal, but hitherto with no persistent success. Let us hope this praiseworthy endeavour at resuscitation may meet with better support. It is a pity some other title had not been invented, if only for the very obvious reason of avoiding confusion in references. As a proof of the wide-spread interest in different branches of Natural History in this thickly populated district, it may be noted that the number before us contains reports of recent meetings of eight local societies; and there are several interesting papers on special subjects. The success, or otherwise, of the journal, depends mainly upon the manner in which the 'team' can be induced to pull well together, and therefore upon the leadership of the editors.

Field and Forest: devoted to general Natural History; Bulletin of the Potomac-side Naturalists' Club. C. R. Dodge, Editor. Parts 1 and 2 (June and July, 1875). Washington: The Columbia Press.

We regard it as a hopeful sign that our American neighbours are not only establishing Field Clubs, but beginning so far to feel their feet that they venture upon journalism. The salutatory introduction tells us that this particulur Club is nearly twenty years old; and it makes a modest *début* as a publishing body by a well-printed monthly number of only eight pages. We trust it has taken for itself, and will act upon, the proverb:—"*Ce n'est que le premier pas qui coûte.*"

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

(continued from page 25.)

Genus THAMNOTETTIX.

THAMNOTETTIX NIGRICORNIS, J. Sahlberg.

Orange-yellow or slightly greenish.

Crown with four black spots placed as follows:—two, large, near the anterior margin of the eyes of somewhat irregular shape, and two on the anterior margin, close together, continued on to the frons, and when viewed from in front appearing of a somewhat triangular form. *Face* with a more or less distinct short longitudinal streak on each side, extending from about in a line with the base of the antennæ to the base of the loræ; interior margin of the genæ and loræ narrowly black. *Antennæ:* 1st joint yellow, 2nd black, apex narrowly yellow; setæ black, base brown.

Thorax—pronotum yellow or somewhat greenish, with or without indications of four longitudinal black lines. *Scutellum* black or yellow, in the former case with three yellow V-shaped characters placed—one at each basal angle and the other round the apical margin, or in the latter with a triangular black spot near each basal angle. *Elytra* black, with the anterior margin and nerves, as far as the apical areas, orange-yellow or somewhat greenish (in the ♀ these characters are not so strongly defined); apical areas and nerves deep fuscous-black. *Sternum* black, shining, exterior margin of the *pro* and *mesonotum* yellow. *Legs* somewhat umber coloured or bright yellow. *Coxæ* black, apex dingy yellow. *Fulcra* yellow. *Thighs:* 2nd and 3rd pairs with a short narrow line down the middle of the inside, at the apex. *Tibiæ:* outer margin narrowly black; 3rd pair, exterior margin spotted with black; spines brownish-yellow; down the inside a broad black streak; spines on the inner margin finer and paler than those exteriorly. *Tarsi* umber coloured or yellow, apex of the joints narrowly, and *claws* fuscous-black.

Abdomen above and beneath black; side margins and posterior margins of two or three of the terminal segments narrowly yellow.

Length 2–2⅓ lines.

Very closely allied to *T. 4-notatus*, but more elongate, and by the characters on the elytra may at once be distinguished from that species.

I have only seen this species since the publication of the other portion of this genus. It was taken by Dr. Power, at Colton, in Somersetshire, in August.

NOTE.—On page 24 *ante*, species 7, for *punctifrons*, Fall., substitute *Torneella*, Zett.

Lee: *July*, 1875.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

Description of a new genus and species of the family DELPHACIDÆ.

Genus EURYBREGMA.

♂. Developed form.

Head—crown almost twice as broad as the length measured down the centre; central keels obsolete; base with two deepish foveæ with the usual M-shaped marginal keels, and in the apex of which exteriorly, is a third small fovea, anterior margin slightly convex, but a little way in front of the eyes. *Face* with rudimentary indications of two keels, approximating and uniting at the apex; side margins slightly concave between the eyes. *Antennæ* short, reaching to or a little beyond the base of the clypeus; 1st joint longer than thick, somewhat cylindrical, and shorter than the slightly clavate 2nd joint.

Thorax—pronotum: side keels near to the eyes, curving round parallel with their posterior margin and not reaching the lateral margin. *Scutellum* with a central and two side keels, the former not reaching the apex, the latter almost parallel with the former, joining the sides at the base of the triangle. *Legs—tibiæ:* spur at the apex of the 3rd pair triangular, flat; lower margin convex, finely serrate. *Tarsi:* 3rd pair, 1st joint long, equal in length to the other two.

This genus stands near to that of *Eurysa*, Fieb., but the greater breadth of the head, difference in the side margins of the face between the eyes (in *Eurysa* these are convex), and form of the genitalia, at once shew their distinctness.

Species EURYBREGMA NIGROLINEATA.

Head fuscous-brown. *Pronotum* and *scutellum* yellow, each with two black longitudinal lines. *Elytra* much longer than the abdomen, pale testaceous-white; nerve adjoining the anterior margin and the nerve adjoining the claval suture broadly margined with brown, becoming darker as it reaches the transverse nerves, from whence to round the apex it is broadly black.

Head—crown fuscous-brown; foveæ black, keel between the two basal ones yellow. *Face* fuscous-brown, paler towards the apex; on each side between the latter and the lower margin of the eyes an oval black patch. *Antennæ* pale yellow, slightly dusky.

Thorax—pronotum pale yellow, lateral margins and a streak down each side of the centre black, in the middle of the latter a small fovea. *Scutellum* orange-yellow; side keels black; central keel white. *Elytra* pale testaceous-white. *Clavus:*

between the suture and the first nerve brownish, darkest next the nerve. *Corium:* between the anterior margin and the first nerve almost white, the latter margined with brown, widening and becoming darker as it approaches the transverse nerves, from thence to the apex black; nerve adjoining the claval suture margined with brown, becoming darker as it approches and extends to the latter from thence to the apex black, where it is united to that down the anterior margin. *Wings* pale, nerves black narrowly margined with pale fuscous. *Sternum:* sides of the segments black margined with yellow. *Legs* pale fuscous-testaceous. *Thighs* with a longitudinal black streak down the inside.

Abdomen black; dorsal line and side margins narrowly yellow; last genital segment black, posterior margin almost perpendicular, near the upper margin on the side a somewhat triangular yellow patch; opening viewed from behind almost circular; styles long, aculeate, diverging as they ascend, and almost touching the margin in a line with the tube.

♀. Unknown. Length 2½ lines, nearly.

In stature between *Delphax pulchella*, Curt., and *Liburnia speciosa*, Boh., to both of which it may be said to bear a rough resemblance. From the former the difference in the shape of the antennæ will show that they do not belong to the same genus, and from the latter the broader head, absence of keels, and difference in length of the joints, of the antennæ, are sufficiently distinguishing characters.

I took a single ♂ example at Fawley, by sweeping, in June of the present year.

Lee: *July*, 1875.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA.*

BY JOHN SCOTT.

[*Revision of the genus* ATHYSANUS, *and descriptions of species.*]

The insects comprised in this genus form, in part, the second subgeneric division out of four into which Burmeister, in his "Genera Insectorum," vol. i, separated the species representing the genus *Iassus*, Germar. For his type he took the *Cicada argentata*, Fab. (a species not known to be found in Britain), and all subsequent authors have adopted his type, and raised the group to its present from its somewhat lower state. The drawings in Burmeister's Gen. Ins. are probably unequalled for correct outline and for details of the various parts of the creatures. Since this is so, it seems to me very remarkable that out of the nine species he enumerates four of these relate to the genus *Acocephalus*, Germ., which had been previously figured in

the same work, and where the genitalia (which he himself points to as a leading generic character), as well as the shape of the head, ought to have indicated their true position.

In 1858, Kirschbaum published his "Athysanus-Arten," consisting of eighteen species, eleven of which he described as new; but two of these, *diminutus* and *sulphureus*, being only (according to Fieber) respectively *interstitialis*, Germ., and *impictifrons*, Boh., the number is reduced to sixteen. Still further, three other species are referable to as many other genera, viz., *brevis* to *Goniagnathus*, Fieb., *ventralis* to *Graphocræus*, Thoms., and *stylatus* to *Doratura*, J. Sahlb.; so that in all there remain but thirteen representatives of the genus. This condition of matters remained pretty much in the same state until 1868, when Kirschbaum's "Cicadinen der Gegend von Wiesbaden u. Frankfurt" appeared, in which are recorded no fewer than thirty-nine species. Five of these I have already referred to other genera, and of the remainder nineteen figure as his own. Here Fieber again steps in and extracts eleven others, for the following reasons, viz., *lacteinervis* which he consigns to his genus *Allygus*; *proceps*, *Minkii*, *convexus*, *sejungendus*, *Schenckii*, *incisus*, *pallidior*, and *anomalus*, species resting for the most part on the authority of single specimens (some of one sex and some of the other) in the author's collection, and which he refused Fieber a sight of after various applications (see Verh. z.-b. Wien, pp. 27—33 [1872]); two others, *confusus* and *validinervis*, which Fieber knew, he refers to *sordidus* and *grisescens*, Zett. Assuming this to be the true state of things, then Kirschbaum has really added eight good species to the genus. But there still remain three other species to be dealt with before the list is thoroughly purged; these are *lineatus* and *Preyssleri* both belonging to the genus *Thamnotettix*, Scott (Fieb.), and *homophyla* to that of *Doratura*, J. Sahlb. After all this disseveration, there are twenty species left, of which we have ten, and, in addition, five others unknown to Kirschbaum. Many of the species are only met with in the brachypterous state, and some of them in great abundance.

To facilitate the recognition of the species, I have divided them into three apparently natural sections, as follows:

Section A.—Distance between the inner margin of the eyes at the base of the head not twice as great as the length down the centre; anterior margin very slightly rounded, angle somewhat acute.

Section B.—Distance between the inner margin of the eyes at the base of the head twice as great as the length down the centre.

SECTION C.—Distance between the inner margin of the eyes at the base of the head more than twice the length down the centre; anterior margin sub-rotundate.

SECTION A.

Crown pale ochreous, without markings. *Face* without transverse streaks; round the upper margin a somewhat broken black line or streak. *Elytra* about as long as the abdomen, ashy-grey, farinose; claval suture narrowly pale fuscous. Length, 2—2¼ lines.....1. CANESCENS, Doug. & Scott.

A full description of this insect will be found in the Ent. Mo. Mag., vol. ix, 210 (1873). We have no other species with which it can be confounded.

Crown testaceous, inclined to yellowish, with an almost obsolete arcuate brown streak before the anterior margin, and another transverse, short, straight one, also almost obsolete, in a line with the anterior margin of the eyes. *Face* yellowish, with about nine finely undulating, transverse, black streaks on each side. *Elytra* testaceous-yellow, or with a greenish tinge, covering little more than half of the abdomen; nerves, especially posteriorly, very finely but irregularly margined with black; apical areas more or less black

Abdomen: above yellowish, more or less black upon the sides; side margins narrowly yellow; posterior margin of the last three segments narrowly black, and across the middle of each an irregular row of minute black spots. Length, 1½—1¾ lines ..... 2. DEPRESSUS, *n. sp.*

A flatter and broader insect than *A. brevipennis*, Kirschb., to which it is very closely related; but it differs from that species in having the nerves of the elytra margined with black, also the apical areas of the same colour.

The only specimens I have seen were taken by the Rev. T. A. Marshall at Braemar; the date is not given.

Crown yellowish or testaceous, with an arcuate brown streak before the anterior margin, and a transverse, short, straight one of the same colour in a line with the anterior margins of the eyes. *Face* black, with a narrow yellow central line, and about seven transverse ones of the same colour on each side, the alternate spaces about equal in width. *Elytra* dusky-testaceous or pitchy-brown, longer than the abdomen, with pale nerves; the areas more or less pitchy-brown.

Length, 1¾—2 lines...3. { GRISESCENS, Zett. (*cognatus*, Doug. & Scott. *validinervis*, Kirschb. ♀.)

Somewhat after the form of *A. sordidus* or *plebeius*; but the characters on the head are different from either of those species.

This species is fully described in Ent. Mo. Mag., vol. ix, 211 (1873), and although I have only seen the examples in the collections

of Mr. Douglas and my own, yet it is not impossible that it may be found mixed up with the two species named above in the cabinets of other collectors.

Crown testaceous, with an arcuate black streak at the anterior margin, and a frequently interrupted transverse streak of the same colour in a line with the anterior margin of the eyes; frequently these characters are almost obsolete. *Face* black, with 7—8 fine transverse, curved, yellowish lines on each side, the two next the apex generally appearing as spots; down the centre a narrow yellow line, frequently wanting. *Clypeus* black, with a broadish yellow margin. *Loræ* yellow, more or less broadly margined with black. *Elytra* as long as, or slightly shorter than, the abdomen, testaceous. *Clavus:* on one or both sides narrowly margined with brown, and frequently broken up into spots. *Corium:* next the claval suture with a brown streak; all the areas more or less brown; apical areas generally brown; sometimes the entire disc is pitchy-brown, leaving the nerves here and there narrowly testaceous. *Thighs:* 1st pair yellow, with a broad black ring at the base, and another narrow one before the apex; these are very often represented by two spots on the lower margin, or are entirely absent. Length, 1½—1¾ lines .....4. SORDIDUS, Zett. (*confusus*, Kirschb.).

The characters on the head are somewhat like those of *A. grisescens*, but their position is different, whilst those on the elytra more resemble *A. obsoletus*, a species much larger than the one just described.

Elytra testaceous; nerves on both sides, and frequently the areas, more or less irrorated with fuscous-black. *Clavus:* apex narrowly, and apex of the nerves white. *Crown* with a very narrow black central line extending from the base to about in a line with the anterior margin of the eyes; near the base, and nearer to the eyes than the centre, a small black spot; in front two others slightly larger and close together; round the half of the ocelli next the eyes is a broad black border to which is joined an elongate black patch running somewhat obliquely towards the centre of the basal margin. *Face—frons* with a lunate black patch on either side, below which are seven or eight transverse black streaks. *Thighs:* first and second pairs with the apex narrowly and two rings, the basal one broadest, black .....5. IRRORATUS, *n. sp.*

Extremely like *A. obscurellus*, and probably may be mixed up with this species in collections, but the narrower head and characters on it, and the elytra, will lead to its identity.

SECTION B.

Distance between the inner margin of the eyes at the base twice as great as the length down the centre.

a. Anterior margin distinctly rounded; angle somewhat obtuse.

♂. *Crown* black, with a narrow yellow arcuate line on the anterior margin, slightly widest in the middle, and extending from eye to eye; basal margin with two

small yellow spots placed nearer to the eyes than the middle. *Ocelli* bright red. *Face* black, with two or three short, obscure, yellowish, transverse streaks on the frons. *Pronotum* black, finely wrinkled transversely, except a small portion next the anterior margin, which is slightly raised above the other portion of the disc; behind each eye a somewhat indistinct yellow spot. *Scutellum* black, base with a small dusky-yellow spot on each side of the centre; sides, from in a line with the transverse channel to the apex, narrowly yellow, forming a distinct V-shaped character. *Elytra* pitchy-black, longer than the abdomen. *Clavus:* here and there between the nerves finely reticulated transversely with yellowish. *Corium:* between the claval suture and the adjoining nerve finely reticulated transversely with yellowish; adjoining ante-apical areas down the middle testaceous-white; the pitchy-black portion thickly and minutely dotted with testaceous-white. *Legs* black. *Thighs:* 1st and 3rd pairs at the apex sordid yellow. *Tibiæ:* 1st pair sordid yellow, anterior margin black; 3rd black, anterior margin sordid yellow spotted with black, in which the long brownish-yellow spines are set.

♀. *Crown* testaceous-yellow, with a black spot on each side of the middle near the anterior margin; basal half black; posterior margin narrowly, and four spots attached, testaceous-yellow. *Face* black, with seven or eight short, fine, transverse yellowish streaks. *Elytra* paler than in the other sex, and the reticulation more distinct. The other characters nearly as in the ♂. Length, ♂, 2, ♀, 2¼ lines.

6. PICEUS, *n. sp.*

Its black appearance will at once lead to its recognition.

I have only seen two specimens (♂ & ♀), the latter in the collection of Mr. Douglas, sent to him by the late Mr. T. J. Bold; the former in my own collection, taken by Mr. T. Wilkinson near Scarborough some years ago. The insect has been submitted to M. Lethierry and Mr. J. Sahlberg, and was returned as unknown to them.

Crown pale testaceous, with a triangular black spot in front before the anterior margin, sometimes continued in a linear form as far as the ocelli; in the middle two black spots about equidistant from each eye and each other; near the base and adjoining each eye a small black spot, sometimes obsolete. *Face* pale or somewhat greyish-testaceous, with about nine transverse, curved, black streaks, frequently united by a black border interiorly, and leaving a fine, pale, central line. *Clypeus* and *lorœ* pale, the former with a more or less distinct small black or brown spot near the apex. *Elytra* as long as the abdomen, pale testaceous; claval suture narrowly brown; inner margin of all the nerves finely reticulated with brown, the reticulation more prominent in some individuals than in others, and not unfrequently altogether wanting. *Thighs:* 1st pair with a short black dash on the inside at the base, and two of the same colour on the lower margin. Length, 2—2½ lines .....7. OBSOLETUS, Kirschb.

The characters on the elytra are somewhat similar to those of *A. sordidus;* but the above insect is always much paler and larger than that species, and, independently of this, the markings on the head are entirely different.

Crown yellowish, with eight black spots, placed six on the anterior margin, the largest next the eyes and somewhat square, the smallest somewhat rounded next the centre; at the base a brownish spot, enclosed by a narrow black border. *Face* yellowish, with about eight transverse black streaks on each side, and a pale brownish curved one on the upper margin. *Clypeus:* next the apex with a black spot: *loræ* margined with black. In many examples the whole of the characters on the head are almost obsolete. *Elytra* longer than the abdomen, very pale testaceous; nerves on both sides and some of the areas more or less thickly, finely and irregularly powdered with piceous; on the disc five pale milky-white spots placed one in a line with the apex of the scutellum between the claval suture and central nerve, another at the apex of that nerve, and one at the base and apex of the ante-apical area immediately below the basal area. *Wings* entirely pale. Length, 1¾ lines .....8. PLEBEIUS, Fall.

This species may easily be separated from *A. obscurellus*, to which it is allied, by the milk-white spots on the elytra (most visible when the insect is in repose), the difference in the characters on the head, and the pale wings.

Crown black, with a yellow T-shaped character in front, in the upper part of which and just before the anterior margin are four black spots, frequently united; on each side at the base a narrow, semi-oval, narrow streak extending between the central line and the inner margin of the eye. *Face* black, with from six to eight fine yellow transverse lines on each side. *Clypeus* black, very narrowly margined with yellow: *loræ* black, with a more or less large yellow spot in the middle. *Elytra* longer than the abdomen, yellowish or yellowish-testaceous, thickly and very finely spotted with dark fuscous or black, somewhat disposed in longitudinal rows; sometimes the spots are united at irregular intervals, varying in different individuals, and forming short lines, giving to the disc a somewhat reticulated appearance. *Wings* dark fuscous at the base and apex. *Thighs:* 1st pair black, base, a narrow ring before the apex, and the latter itself yellow.
Length, 1½—2 lines.....9. OBSCURELLUS, Kirschb.

In repose, this insect has always a dusky appearance, which varies much in intensity. The absence of the milk-white spots on the elytra is sufficient to distinguish it from *A. plebeius*.

This is the insect which has been doing duty in the collections of this country under the name of *Strongylocephalus agrestis*, Fall.

b. Anterior margin distinctly rounded; angle somewhat acute.

Crown yellowish-white, with a narrow, curved, black streak on each side of the centre before the anterior margin; across the middle a narrow, elongate, lozenge-shaped, pale brown patch, its extremities joined to two short longitudinal lines, which reach the base and enclose between them two yellowish-white spots. *Face* black, with about six short, slightly curved, transverse, yellow streaks on each side, and a narrow yellow central line terminating in a spot of the same colour at the apex. *Clypeus* black, with a yellow spot on each side at the base; some-

times the face is yellowish, with six or seven short slightly curved black streaks. *Elytra* much longer than the abdomen, yellow. *Clavus* with a narrow brown line down the inner margin of the dorsal nerve, interrupted by the white apices of the nerves. *Corium:* anterior marginal nerve somewhat brownish-yellow; apices of the ante-apical areas frequently brown; nerves slightly paler than the disc. *Thighs:* 1st pair yellow, more or less black at the base, and with a narrow black ring before the apex, sometimes only represented by a spot on the inside. Length, 2½ lines.....10. SUBFUSCULUS, Fall.

In general appearance, this insect bears a strong resemblance to the following one, from which it may at once be distinguished by the absence of the black spots in the clavus and corium.

On the continent, two other species belonging to this group occur, viz., *A. erythrostictus*, Fieb., and *A. simplex*, H.-Sch., and I think it very probable that they may be met with in this country. Both have pale heads as in *A. dilutior*, and, when in repose, they much resemble the ♀ of *A. subfusculus* in the elytra.

Crown yellowish-white, with a somewhat triangular pale brownish spot in the middle on each side of the centre. *Face* testaceous-yellow, with about seven short, curved, transverse pale brown lines on each side, slightly broader than the pale spaces: *lorœ* at the base with a short narrow brown margin. *Elytra* much longer than the abdomen, yellowish-testaceous. *Clavus* with two short longitudinal black streaks, one adjoining the claval suture and about in a line with the apex of the scutellum, the other situated a little higher up; apices of the nerves white; apex narrowly piceous. *Corium* with two short longitudinal black streaks, placed one near the apex of the basal area, and the other near the base of the ante-apical area immediately below it. *Thighs:* 1st pair with a narrow black streak down the inside, in some cases obsolete. Length, 2½ lines.
11. DILUTIOR, Kirschb. (*flebilis*, Fieb.).

The pale head and black streaks on the elytra of this species will at once serve to separate it from the foregoing.

Crown pale testaceous, without markings. *Face* pale testaceous, the upper portion with sometimes three or four short transverse brownish streaks. *Elytra* much longer than the abdomen, pale yellowish-green; apex slightly brownish; nerves paler than the disc. *Thighs:* 1st pair yellow. Length, 2½—3 lines.
12. PRASINUS, Fall.

According to Fieber, this is *A. Zelleri*, Kirschb., and *A. prasinus*, Kirschb., is *A. simplex*, H.-Schf.

Crown black, with a yellow anchoriform character in front, and two short transverse yellow streaks in a line with the anterior margin of the eyes, and two others near the base; basal margin narrowly, inner margin of the eyes and a spot near the latter, yellow. *Face* black, with seven or eight short, slightly curved, transverse yellow lines; down the centre a fine yellow line, terminating at the apex

in a spot of the same colour. *Pronotum* black, finely wrinkled transversely, and with numerous short, irregular, testaceous, transverse streaks. *Elytra* longer than the abdomen, greyish or pale yellowish-grey; all the nerves more or less broadly margined with black on both sides, giving to some of the areas an ocellated appearance; base of the ante-apical area immediately below the basal one with a conspicuous black spot, and frequently another lower down where the area contracts; the two dorsal apical areas black. *Thighs:* 1st pair black, with a yellowish spot or band just beyond the middle. Length, 1¾ line.

13. STRIATULUS, Fall.

From the pattern on the elytra, one is reminded of that on several of the *Deltocephali*, but the different form of the head at once removes it from that group. After the examination of several specimens, and comparing them with *Thamnotettix corniculus*, Marshall, described on page 23, *ante*, I am convinced that they belong to the same species, and Marshall's name must sink.

(To be continued).

BRITISH *HEMIPTERA*.—ADDITIONS AND CORRECTIONS.

BY J. W. DOUGLAS AND JOHN SCOTT.

Section CAPSINA.

Family *PILOPHORIDÆ*.

Genus PILOPHORUS, Hahn.*

(*Camaronotus*, Fieb., Doug. and Scott).

Species 1.—PILOPHORUS CLAVATUS.

Cimex clavatus, Lin., S. N., 729, 97; *Phytocoris clavatus*, Burm., Handb., ii, 266, 1; *Capsus clavatus*, Kirschb., Caps., 72, 80, and 137; Flor, Rhyn. Livl., i, 569, 59; *Camaronotus clavatus*, Fieb., Eur. Hem., 313, 2.

Dark brown with a dull velvety appearance, and clothed with short appressed golden-yellow hairs. *Clavus* with one, *corium* with two, transverse silver-white bands, that on the clavus a little above the level of the second on the corium.

Head black, with a somewhat bronzy appearance. *Antennæ* brown; apical third of the 2nd joint black; 3rd black, base narrowly white or pale orange-white; 4th black, base very narrowly whitish.

Thorax—pronotum and *scutellum* black, with a somewhat bronzy appearance; the sides of the latter with a dull silvery margin. *Elytra* dark brown, with a dull velvety appearance, and clothed with short, appressed, golden-yellow hairs.

* All the continental authors having agreed to restore the Hahnian name to this genus, it being the older one, we have also adopted the same course.

Corium with two narrow silvery-white bands terminating at the claval suture, and placed, one in a line with the apex of the scutellum, the other, slightly arcuate, a little above the apex of the clavus. *Clavus* pitchy-brown, with a dull velvety appearance, with a transverse silvery-white band a little above the lower of the two on the corium; *cuneus*, a little below the base, with a fringe of silvery-white hairs. *Membrane* velvety-brown, with a broad iridescent margin; lesser cell, and a streak at the apex of the cuneus, white. *Prosternum*, on the sides, pitchy-black; *mesosternum:* posterior margin silvery-white. *Legs* brown; *coxæ* and *fulcra* pale yellowish-white; *thighs* brown, clearer and brighter, curved at the base and apex; *tibiæ* smoky-reddish-brown; *tarsi* brown; apex of the 3rd joint broadly black.

Abdomen, underneath, pitchy-brown, basal segments more or less broadly silvery-white, the colour slanting towards the middle and forming a lunate band.

Length, 1¾ line.

A trifle larger than *P. cinnamopterus*, and without its red colour. It is more nearly allied to *P. perplexus*, the following new species, but differs from both by the position of the silvery band on the clavus, and the absence of the white spot on the cuneus.

A few specimens were taken by us on sallows in a marshy place at Lee, in August.

Camaronotus clavatus, Brit. Hem., i, 360, 2. The description (exclusive of the synonymy) and the figure must be referred to *Pilophorus perplexus*. An amended description of this new species follows.

Species 2.—Pilophorus perplexus.

Camaronotus clavatus, Doug. and Scott, Brit. Hem., i, 360, 2 (*nec* Lin.).

Olive-brown with a dull velvety appearance. *Scutellum:* sides at the base and apex silvery-white. *Elytra* with two transverse silvery-white bands, the upper one terminating at the claval suture, the lower one slightly angular, and continued across the clavus. *Cuneus* with a silvery-white spot at the inner basal angle.

Head black. *Face:* side-lobes more or less clear brown. *Antennæ* reddish-brown or brown; 2nd joint broadly shaded off into piceous or black at the apex; 3rd pale reddish, apical half darker; 4th brown, basal third or half white or pale yellowish-white.

Thorax—pronotum black, dull, with a deep green appearance in certain lights, very finely wrinkled transversely. *Scutellum* black, with a deep green appearance in certain lights; sides near the base with an elongate silvery-white spot; apex silvery-white, extreme apex black. *Elytra* olive-brown, with a dull velvety appearance, clothed with short, appressed, palish-yellow hairs. *Clavus* more or less deep pitchy-brown, with a dull velvety appearance, apex from below the band somewhat shining and finely wrinkled transversely. *Corium* more or less deep olive-brown, the entire part below the lower band, lying between the anterior margin and the nerve, piceous, somewhat shining; in a line with the

apex of the clavus is a silvery-white band terminating at the claval suture, and at about one-third the distance from the apex is another similar one, slightly angulate (in *cinnamopterus* it is slightly convex), continued across the clavus. *Membrane* brown, velvety, with a broad iridescent margin along the margin of the cuneus narrowly white. *Prosternum* black; posterior margin of the *mesosternum*, on the sides, silvery-white. *Legs* brown; *coxæ* and *fulcra* white or pale yellowish-white; *thighs* brown; 3rd pair darkest; base and lower margin at the apex frequently reddish-brown; *tibiæ* ferruginous; *tarsi* white or pale yellowish-white; 3rd joint dark brown.

Abdomen, underneath, black, with a broad silvery-white band extending from the 2nd segment to the posterior margin of the 6th, slanting inwardly in the direction of the apex. Length, 1¾ line.

In colour and size, this species mostly resembles *P. clavatus*, but differs from it in the following characters:—the more contracted anterior margin of the elytra, the *continuous* nearly straight lower silvery band on the same, and a simple silvery spot at the inner basal angle of the cuneus, as in *P. cinnamopterus*, from which species it may also be distinguished by the different colouring of the antennæ, elytra, and tarsi.

With us, this is the commonest of the three British species. It occurs in July and August, on oak trees in a hawthorn hedge, as well as in the hedge itself, in the vicinity of the nests of *Formica rufa*, in company with which insect we believe it dwells.

Camaronotus cinnamopterus, Fieb., Doug. and Scott, Brit. Hem., i, 359, 1, is not, as stated by Reuter in his "Revisio critica Capsinarum," part ii, 85, 1, the *Cimex bifasciatus*, Fab., Mantiss., ii, 305, 264. Stål confirms Fieber's view, and refers the insect to the genus *Closterotomus* of this author.

Lee: *September*, 1875.

ON THE LARVA, &c., OF *CATACLYSTA LEMNALIS*.

BY WILLIAM BUCKLER.

On November 10th, 1874, Mr. W. C. Boyd kindly sent me six young larvæ of this species in their cases, and I found no great difficulty in keeping them in thriving condition by placing them in a vessel of water with a supply of *Lemna minor* floating on the top. It gave me much interest and pleasure to watch them from time to time, and I have set down my observations as it occurred to me to note them.

When they first arrived, these larvæ were often protruding from their cases half or more of their bodies, both on the surface of the water and also below it, while apparently examining the surrounding

weed; often they would ascend a little way on the side of the glass vessel and fix themselves there with only their head downwards and projecting into the water, while the other end of their cases above it on the glass would have a bright silvery air bubble.

Sometimes they would descend beneath the surface of the water, down the side of the glass, for an inch or two, and even more; and then, while crawling, they often protruded as many as eight segments, showing a line of silvery sparkles along each side in the spiracular region, the other parts of the body appearing blackish.

On the 16th of the month, having noticed that one had remained at the very bottom of the water, hidden entirely in its case, for some time, I removed it to another vessel of water, the better to observe its behaviour: at first it floated on the surface, but after a few minutes came out of the case as far as the fifth segment, and, by crawling, soon managed to arrive at the side of the glass, along which it continued to crawl at the level margin of the water, occasionally turning itself round within its case, and coming partly out at the other end, thus proving the case to be open at both ends, a fact which was not suggested by its appearance. The external figure of the case was of an irregular oval form, nearly half-an-inch in length, and varying in width from two to three lines, the leaves of which it was formed overlapping each other, but in an irregular manner, and so contrived that a leaf or two should hang down and mask the openings at the ends, when the occupant, as was often the case, remained quiet within: the two ends of the case are not quite alike in their fashioning, and the whole thing, when the larva is not seen, very much resembles an accidental accumulation of some of the duckweed, so slight is the eminence which it causes above the general level of the surface.

When the larva reposed just so far within its case as only to show a little of its head, there was the smallest conceivable silvery sparkle lurking at the bases of its antennal papillæ, and also about the mouth; but when it was in motion with two-thirds of its body beyond its case, this quicksilver-like appearance of air in water was exhibited more extensively along each of its sides as a broad band, and even the bases of its anterior legs were encircled with radiance, and sparkling with each movement; this luminous appearance changed its position with that of the larva, according to the angle of light in which it was viewed; sometimes, behind the second segment, the back appeared completely silvered over, and sometimes the belly; and, at other times, transverse silvery lines marked the segmental divisions.

After watching it some time, I took it in my hand and stripped off the case of duckweed leaf by leaf, leaving the larva naked and perfectly dry; then placing it in a small dry saucer, I found it much less helpless than I at first thought, for, recovering in a few seconds from the surprise of its novel situation, it began to crawl about and up the side of the saucer; I then put in a small quantity of water, and placed the larva on it, when it floated without sinking even its feet, and when touched, slid quite helplessly about;—in fact, I found it now impossible to immerse the larva, for its specific gravity seemed as nothing in comparison with the water.

After figuring the naked larva, I placed it in a glass of water with a little duckweed on the surface, and then it at once began to spin some of the leaves together with its anterior legs, placing and holding them suitably for its purpose; and still it remained all the while perfectly dry, its skin being the very perfection of waterproof texture.

In the course of six minutes, it had roughly constructed a new case, and was almost hidden from view, by this time lying on its back and employed seemingly in finishing the interior.

While out of its case, I found it was three-eighths of an inch long, of slender proportion, thickest in the middle, the anal flap rounded above like a small knob, the colour of the head and second segment black above, and shining, the rest of the body without gloss and of a *sooty velvety blackness*, but a blacker dorsal line could be distinguished; a faint olive tint seemed to show through the sooty surface along the spiracular region under a lens, but even that aid did not enable me at this early stage to see the spiracles.

At the approach of winter, all the larvæ ceased to feed on the duckweed, and shut themselves up in their cases for hibernation from early in December to the beginning of March, 1875, when, during the occurrence of a few mild days, they began to move about and protrude their front segments, but soon retired again until the middle of April; thenceforward they frequently came partly out, and appeared to be feeding well, and, by May 5th, their cases were enlarged with additions from the fresh weed.

On the 10th of May, I saw, with some anxiety, a larva out of its case, apparently dead at the bottom of the water; when taken out for examination, it proved to be still alive, but in hopeless plight, infested with extremely minute, slender, whitish, semi-translucent, parasitic worms, which, on emerging, coiled and wriggled round their dying victim. Three other larvæ succumbed to these parasites soon afterwards.

On turning over one of the two remaining cases on May 12th, I was surprised to see the larva walk immediately out of it as though in alarm, and after crawling over the duckweed on the surface of the water, partly ascend the side of the glass; it seemed to be full-grown, so I placed it in a shallow saucer of water, and secured a couple of figures and the following description.

Length just five-eighths of an inch, or a little more when stretched out to the utmost, in which position it appeared nearly uniform in size throughout, but its more usual appearance while at rest or crawling was to be thickest in the middle of the body, the first five segments tapering towards the head, which is partly retractile into the second segment; the second segment is longer than the usual proportion, while the third and fourth are shorter than the others; the thickest segments are the sixth to the tenth; from the latter the figure tapers again to the thirteenth, which is the smallest segment, its former knob not present; the divisions and sub-divisions all deeply defined, the anal tip rounded and but little sloped; the anterior legs very well developed; the ventral ones full and fleshy, but with small feet; the anal pair rather small; the back, viewed sideways, a little arched, sloping off towards the head, and more to the anal extremity.

The colour of the head is pale olive-brown, darkest at the mouth, and shining; the very lustrous black plate on the second segment is relieved behind by a pale margin of olive-greenish; from thence the whole surface of the body is of a deep sooty-olive blackness, soft and velvety, with the slight exception of the anal tip being a little browner than the rest, and rather less velvety; a black dorsal stripe can just be discerned; the anterior legs pale olive; the puffed spiracular region is a little puckered, and the small circular blackish spiracles raised in the least degree above the surrounding surface, and slightly glistening; a few fine soft hairs from the usual situations just visible.

As before, this larva, when supplied with a little duckweed, soon formed for itself a new case; on examining the case of the other survivor, I found it had already become a pupa; I put them in the same vessel together, and, on May 15th, I found the larva was joining its case to that which contained the pupa, thus making together a much bigger object floating on the water; at intervals more weed was added by the larva until the 17th, when it became quiescent, and then the whole mass presented an oval form of about the bulk of a house-sparrow's egg.

Not expecting an imago quite so early, I left the water uncovered

until the 26th of May, when I noticed a diminution in size of the case, and knew I had lost the first moth; but I secured the second moth, a fine female specimen which appeared on June the 5th.

On opening the deserted remains of the cases, I found that of the first moth fallen to decay, while the one just vacated was oval within, five-eighths of an inch in length, thickly and smoothly lined with whitish silk; the old blackish cast skin of the larva, and the broken pupa skin, remaining in it; this pupa skin was a little more than three-eighths of an inch in length, with a large development of the wing-, antenna-, and leg-cases, the latter projecting a little free from the body, which was smooth and shining, the head and thorax rounded off, the abdominal tip rather blunt, and but little produced beyond the last ring, and having on each side a small angular projection; the circular flat button-like spiracles very slightly raised above the surface: the colour was a warm brown, and shining.

Emsworth: *August 16th*, 1875.

DESCRIPTION OF A NEW SPECIES OF *MYRINA* FROM W. AFRICA.

BY W. C. HEWITSON, F.L.S.

A small collection of butterflies brought from the Cameroons and very liberally intrusted to my care by Mr. G. B. Medley, though not rich in rare things, contains a very beautiful new species of *Myrina*, which I characterize as follows:—

Myrina Genuba, *sp. n.*

Upper-side: ultramarine blue. Anterior wing with the costal and outer margins, and an unusually large central discal spot, dark brown. Posterior wing with one tail; the costal margin brown, the outer margin dentated, black, narrow, the fringe white.

Under-side: white, with the outer margins broadly brown, traversed inwardly, where it joins the white by a rufous-brown band bordered on both sides with dark brown. Posterior wing with a black spot at the base of the tail, bordered broadly with orange; the lobe black crowned with blue, a black spot near it irrorated with blue; two lunular brown spots towards the apex bordered with white, the outer margin black bordered inwardly with white.

Exp. $1\frac{3}{10}$ inch. Hab. Cameroons, West Africa.

Oatlands, Weybridge:
September, 1875.

Note on Eros minutus.—Having a few hours' leisure in the intervals of the business of the British Association, Mr. Bates, Mr. McLachlan, and I were duly escorted by a friendly band of Bristolian experts to Leigh Woods, their happy hunting ground, where, from the luxuriant growth of many kinds of trees, the age of most of the timber, and the evident traces of insect life, it is clear that collecting in the early summer could not fail to be very profitable. The time of year, however, being at the time of our visit unpropitious, and our opportunity very small, nothing of any consequence was found, except, perhaps, *Orchesia undulata*, of which erratic skipper I found five or six specimens in fungoid growth under felled oak bark, where *Cerylon*, *Leptusa*, &c., of course occurred. In looking for such things, I was somewhat surprised to find, on three or four occasions, very fine specimens of *Amphipyra pyramidea*, packed in spaces that must apparently have somewhat pinched them for room. The only species really worth recording, that fell to our lot, was *Eros minutus* —that "little *Lycus*" whilom found here by Senor Edwyn Reed of Chile, whose secret appears to have crossed the seas with him, and of which sporadic examples have occurred in various parts of the south, chiefly by sweeping under fir trees. Of this, we "happened on" a brood, a straggler of which caught the attention of my Neuropterous colleague, who, not forgetful of old Rannoch experiences with the larger species, immediately called my attention to it. The insect was living under practically the same conditions as its Scotch ally, in the very rotten and almost powdery remains of a large felled stump, on which *Scaphidium*, not often seen by cockneys, alternately raced and shammed death. This stump was so old, that no fibre or bark remained to guess as to what tree it had once belonged; it was too large for fir,—and, from the surrounding growth, was probably oak. Forty-seven specimens fell to us; and, as only the odd seven were females, the species is clearly one of the *Polyandria*. These females were found *in copulâ*, the balance of males rambling about in search of partners; most of them shammed death on being touched, and one flew briskly. The insect varies much in size, from 2½ lines to 4; and the female is readily distinguishable by her much stouter build, and much shorter and thicker antennæ. As usual in insects of soft integuments, some amount of distortion or malformation occurred in the number taken, chiefly in the antennæ; in one example, those organs are apparently female on the left and male on the right. In another, a ♂, the right front tibia is deeply bifurcate at the apex, the upper furcation bearing a normal tarsus, and the lower having a tarsus of which the three basal joints are normal, and the fourth is unduly dilated, two perfectly formed claw-joints springing from near the centre of its comparatively monstrous lobes.—E. C. Rye, Parkfield, Putney, S.W.: *September*, 1875.

Note on an unrecorded habit of Cryptophagus populi.—During a recent ramble of Mr. Marsh and myself to Farnham, Surrey, we chanced to pass a high cutting of soft sandstone, extending for some little distance along one side of the road, the perpendicular sides of which proved to be riddled with thousands of burrows of *Colletes Daviesana*, containing abundance of the insect in all its stages; and, on looking closely round the holes of the *Colletes*, and at the base of the cutting, we found a *Cryptophagus* in abundance. This, on examination, turned out to be the rare *C. populi*, a species hitherto found in fungus and rotten wood.

Judging from the specimens obtained, it appears to me to be one of our most

variable species, the difference in size between some of the examples being considerable (1¼ lin. to 1⅝ lin.), and the colour being (in most cases) entirely ferruginous (*grandis*, Ktz.), or with an ill-defined elytral dark spot, or with entirely dark elytra: the dark form, I noticed, was rare. Examples of the *Cryptophagus* were also to be obtained by tapping the holes of the *Colletes*, so I have no doubt the beetle lives in the burrows. Various species of *Cryptophagus* have, I believe, been found in bees' nests, but I do not think *C. populi* has been so recorded.—G. C. Champion, 274, Walworth Road, London, S.E.: *September 8th*, 1875.

Notes on Coleoptera in Cornwall, &c.—During the stay of H. M. S. "Swiftsure" at Plymouth, since April last, I have been enabled (though by no means as fully as I could have wished) to investigate the Coleopterous Fauna of the locality: my operations being, however, almost entirely confined to the Cornish side of the Tamar. As I leave England in a day or two, once more for the Mediterranean, I have drawn up a few hasty notes on the more important of my captures, which may be interesting, as shewing, from a Coleopterist's point of view, the productiveness of this (I believe) comparatively unworked district.

By far the best collecting-ground within reach I found to be Whitsand Bay, distant about four miles from Devonport. Here, about a quarter of a mile from Fort Tregantle, is a sort of "chine" in the slate cliffs, the western side of which, as well as the lower part of the cliffs themselves, for a few hundred yards, is covered with an accumulation of sand blown by the winter gales from the beach below. A vigorous growth of the ordinary coast sand-loving plants (*Glaucium*, *Erodium*, *Eryngium*, *Ononis*, &c. &c.) occurs on this spot, while the cliffs themselves are clothed with a profusion of "samphire" (*Crithmum maritimum*), wild carrot (*Daucus carota*), and many other wild flowers and plants, some of great interest to the Botanist. The sandy spot was, however, almost entirely the scene of my operations. Stimulated by the capture here of *Psammodius porcicollis*, Ill., in June, I afterwards visited the locality almost every week: but although I was often tantalized by finding fragments of the beetle on the sand, it was not until quite the middle of August that I succeeded in taking it in small numbers beneath the surface of the sand, under small stones, as well as at the roots of stunted herbage.

Other beetles which occurred in this prolific spot comprised *Harpalus tenebrosus*, which was common under stones and herbage, but, unfortunately, not recognising it for some time, I did not take so many as I might otherwise have done: *Phytosus balticus* and *Oxytelus maritimus*, under sea-weed, &c.: *Phaleria cadaverina*, in profusion in the sand under sea-weed, the specimens nearly all having the dark markings on the elytra very strongly developed, forming some striking varieties: *Otiorhynchus rugifrons*, common under *Ononis*: *Cænopsis Waltoni*: *Sitones Waterhousii*, not rare on *Lotus*: *Orthochætes*, *Molytes coronatus*, *Hypera plantaginis* and *suspiciosus*, under herbage: *Tychius lineatulus*, common on *Anthyllis*: *Ceuthorhynchideus terminatus*, rarely, and *C. Dawsoni*, in great abundance at roots of *Plantago lanceolata*; *Apion confluens*, *Hookeri*, *Gyllenhali*, &c., under *Ononis*: *A. atomarium*, under *Thymus*: *Chrysomela hæmoptera*, common beneath stones: and very many commoner species. The *Hemiptera* too were well represented:—*Therapha hyoscyami* (running and flying actively in the hot sun, and partial to viscid plants, such as *Erodium*, *Ononis*, &c.): *Dieuches luscus*: *Henestaris laticeps* (common), and *Salda orthochila*, among others, occurring to me on more that one occasion.

General sweeping in lanes, &c., was not particularly productive. The best things I got by this method were *Calodera umbrosa*, *Stenus plantaris*, *Cyrtusa pauxilla*, *Cercus pedicularius*, L. (locally common on *Spiræa ulmaria*), *Meligethes distinctus* (common on *Teucrium*), *Sitones cambricus*, *Gymnetron beccabungæ*, var. *veronicæ*, *Ceuthorhynchus setosus*, *Cissophagus hederæ*, *Hylastes obscurus*, *Lamprosoma concolor* (common), *Cryptocephalus pusillus* (fine varieties) and *morœi*, *Phratora cavifrons*, &c., &c. By sweeping on the top of the Whitsand Cliffs, *Antherophagus silaceus* and *Salpingus ater* occurred singly, among others; and of the latter insect, I found a specimen walking on the side of a building in Keyham Dockyard, where *Ischnomera melanura* was abundant in early summer.

Mount Edgecumbe Park yielded (besides the traditional *Mesites Tardii*) *Cryptophagus ruficornis* (1) and *Cis alni* under oak bark.—James J. Walker, R.N., H. M. S. "Swiftsure," Plymouth: *August 21st*, 1875.

Sphindus dubius, &c., at Chatham.—Being at home in July on leave of absence, I made a day's excursion to one of my favourite collecting-grounds near Chatham. I first went to the old fallen beech tree I have previously mentioned as being so productive (E. M. M., vol. x, p. 252), and found it still unexhausted. In about an hour I succeeded in finding, in small mealy fungi growing on the rotten wood, two or three *Sphindus dubius* in company with a few *Agathidium rotundatum*: and, in other small fungi, *Bolitochara lucida*, *Liodes orbicularis*, and *Aspidophorus* occurred, all three in some numbers, with one or two *Lathridius testaceus*. By sweeping under oak trees I got *Dasytes oculatus* (several), *Abdera 4-fasciata* (1), *Ceuthorhynchideus versicolor* (in abundance), *Hylesinus oleiperda*, &c., &c.—Id.

A second contribution to the list of Aculeate Hymenoptera of North Wales.—Two years ago I published a list of Aculeate *Hymenoptera* captured by myself in the vicinity of Bangor, and I now give the result of captures made during a month's residence at Barmouth. Some of the species have already been recorded from that locality, captured by the late Mr. Dale, but only two or three that I can call to mind.

According to my observation, North Wales is by no means a locality rich in *Aculeata*, although the large tract of sand-hills at Barmouth would lead a Hymenopterist to expect great results from so apparently promising a field; I confidently expected a far more valuable collection. One or two rare captures will be observed in the list, but of these only one example, or at most three specimens, rewarded very diligent search; these were made during the last week in July, being the first of the four I spent at Barmouth. The weather, during my sojourn, was exceptionally fine for North Wales; every lane, valley, and mountain-side was bright with a great variety of flowers, but insects of all kinds were rare; similar attractions in Kent, Surrey, or Hampshire, would have produced an endless variety of insect life.

The most important capture made is no doubt *Astata stigma;* this species was not known as British before 1845, when I captured a female at Weybridge, in the month of August; ten years elapsed before it was again taken, when I found two females during the first week of September at Deal. Mr. Edward Saunders took one of the same sex last year at Littlehampton, and three have occurred to me at Barmouth. The male has not been captured, to my knowledge, in Britain; it is readily distinguished from the other sex, which in general appearance it closely

resembles, by a white curved spot immediately below the anterior stemma. This insect so very closely resembles *Tachytes pompiliformis*, that I always capture the latter insect and satisfy myself that I am doing so; by adopting this plan I detected *Astata* at Barmouth; the latter is at once known by its having three distinct ocelli, and the mesothorax highly polished above; these characteristics serve to distinguish it on capture; the neuration of the wing is better examined in the study. I think it not unlikely that it may be mixed with specimens of *Tachytes* in some stores of *Hymenoptera*.

A single specimen of the extremely rare *Agenia bifasciata* was found; it is some years since I last took it; it is in few collections.

Of *Apidæ* only one rare species occurred, *Andrena nigriceps*; two females, and, for the first time, what I believe to be its male.

Dasypoda hirta I found on the sand-hills, but not very numerously. Of some species only males were taken, therefore the locality would yield the other sex during September.

Nysson dimidiatus, always a rare species to me, occurred, but I scarcely think the sand-hills could be its proper habitat, having usually found it in cultivated situations; there are four species of the genus found in Britain, only one of which I have found plentifully, *Nysson spinosus*; it frequents the wood-spurge, and burrows in the ground, but I have never been fortunate in detecting it with its prey.

Some of the commoner species of ants are more abundant at Barmouth than I have elsewhere observed them; on the mountain sides, as well as in the valleys, a nest is found under almost every stone that is as large as a man's open hand. On one favourable evening, tens of thousands, if not of millions, were on the wing; they dropped in innumerable numbers everywhere; the shore was alive with their hosts. The species appeared to be three in number, *Formica nigra*, *flava*, and *umbrata*. *Myrmicidæ* were equally numerous under stones, &c., but I did not observe any great flight of them; they must at times be on the wing by myriads.

The following is a list of the species observed; those marked with the prefix * were abundant.

Fam. FORMICIDÆ: *Formica *rufa, *cunicularia, *fusca, *nigra, *umbrata, *flava.* Fam. MYRMICIDÆ: *Myrmica *scabrinodis, *ruginodis, lævinodis.* Fam. POMPILIDÆ: *Pompilus *plumbeus, *gibbus; Priocnemis hyalinatus, exaltatus; Ceropales *maculata.* Fam. SPHEGIDÆ: *Ammophila viatica.* Fam. LARRIDÆ: *Tachytes *pompiliformis, Astata stigma.* Fam. NYSSONIDÆ: *Nysson dimidiatus, Harpactus tumidus, Mellinus *arvensis.* Fam. CRABRONIDÆ: *Crabro *Wesmaeli, brevis, cribrarius; Oxybelus *uniglumis, mucronatus; Diodontus tristis, Cemonus lethifer, Mimesa *unicolor.* Fam. PHILANTHIDÆ: *Cerceris *arenaria.* Fam. EUMENIDÆ: *Odynerus parietum, antilope.* Fam. VESPIDÆ: *Vespa *vulgaris, germanica.* Fam. ANDRENIDÆ: *Colletes succincta, *fodiens; Prosopis hyalinata, Halictus rubicundus, *leucozonius, albipes, villosulus; Andrena nigriceps, pubescens, albicrus; Dasypoda hirtipes.* Fam. CUCULINIDÆ: *Cœliowys simplex, Epeolus variegatus.* Fam. DASYGASTRIDÆ: *Megachile maritima.* Fam. BOMBIDÆ: *Bombus *muscorum, *sylvarum, *hortorum, Scrimshiranus, *lucorum, *lapidarius.* Fam. CHRYSIDIDÆ: *Chrysis ignita, Hedychrum *ardens.*—FREDK. SMITH, 27, Richmond Crescent, Islington: *September*, 1875.

Note on the larva of Abia sericea, Linn., Htg.—The life-history of this common species has not been hitherto described, and I am therefore glad at being able to give a description of the larva.

When full-fed, the head of the larva is rather small compared with the size of the 2nd segment; the colour is black, with the parts surrounding the mouth somewhat paler; and the skin is covered with short whitish hairs. The upper half of the body is dark greyish-slate, and marked as follows: in the centre of the back there is a row of twelve black marks; joined to these outwardly there is a row of twelve orange marks; and joined to these again, but placed more towards the end of the body, is a row of larger black marks; and between each pair of the last mentioned black marks is a small black dot. The lower half of the sides is white. The feet and claspers are white; and over each are two black marks, one above the other. The skin is rather downy, and in furrows; and on each segment are two rows of white tubercles. The spiracles are brownish, and the last segment is paler than the rest of the body.

When young the markings are scarcely, if at all, visible. The egg-laying I have not been able to observe. The food-plant is *Scabiosa succisa*, the leaves of which the larvæ devour at the edges; and whenever the creatures are touched they roll themselves up into a ball and drop to the ground, ejecting at the same time a fluid from apertures in the sides. This fluid is of the same nature as that given out by *Trichiosoma* and *Cimbex*, but the liquid of the *Abia* seems to me to have a bitterer taste. When feeding, the head is usually pressed close to the feet.

The larvæ are found from July to October, and spin a large double egg-shaped cocoon in the earth, and change to pupæ in May and June.—P. Cameron, Jun., Glasgow: 16*th September*, 1875.

Lycæna Alexis hermaphrodite.—I have much pleasure in sending you notice of the capture, by myself, of a hermaphrodite specimen of the common blue (*Polyommatus Alexis*). The right pair of wings are male, and left pair female, the difference being equally well marked on both sides. May I ask if this is a rare occurrence? The specimen is now in the cabinet of Murray Aston, Esq., of Hatchgate, Horley. It was captured in a lane near Horley on the 1st of this month. May I also draw your attention to the great abundance of the feathered gothic moth (*Heliophobus popularis*), Mr. Aston having taken nearly thirty specimens, during the last two weeks of August, at a lamp in the hall of his residence. Can you inform me what is the food-plant of the larva of this handsome moth?—T. Matthews, Station Road, Horley: *September 5th*, 1875.

[About half-a-dozen instances of hermaphroditism in *L. Alexis* have been recorded. The larva of *H. popularis* feeds on various grasses.—Eds.].

Sphinx convolvuli at Emsworth.—On the 18th ultimo, a little boy brought to me, screwed up in a piece of paper, a very fine living *Sphinx convolvuli*, ♀, which had been taken in a garden. The moth was kept alive in the hope of obtaining eggs. I lavished a lot of flowers for her sustenance each evening, to induce her to lay on *Convolvulus arvensis*, which was supplied growing in a pot, but she died on the eighth day without laying eggs, and a post-mortem examination proved that she had none to lay.—W. Buckler, Emsworth: 14*th September*, 1875.

Sphinx convolvuli at Kingussie, Inverness-shire.—Mr. William Duck has sent to the British Museum a male specimen of *Sphinx convolvuli* captured at Kingussie, N. B. The specimen is quite spoilt, but I thought the locality might be worth noting. I see Edinburgh given in the 'Manual,' but as I know nothing of the authority, I send you an undoubted one.—FREDK. SMITH, British Museum: *2nd September*, 1875.

[In the 'Scottish Naturalist,' vol. i, p. 118, *S. convolvuli* is stated by Mr. Traill to have been taken at Harray, Orkney. The species is not included in Zetterstedt's 'Insecta Lapponica,' nor (as a real Finland insect) in Tengström's 'Catalogus Lepidopterorum Faunæ Fennicæ."—EDS.].

On collecting and rearing the Psychidæ.—The rearing of the larvæ of the *Psychidæ*, whatever certain authors may say, is very simple and easy; but certain things must be specially attended to, and if they are not observed to the letter, there will be no development of the perfect insect.

The first point (and this I think is opposed to the practice of collectors) is to collect the cases as soon as possible after the winter is well set in, in order to avoid Ichneumons, the sworn enemies of Lepidopterists; and because, as I have proved, there is a much more numerous development of the perfect insects when the cases are taken before they have been fixed, probably because the larvæ cannot endure disturbance at the time they are changing to pupæ, or even the pupæ, for I have often found that a pupa fallen from its case is a pupa lost. I do not hesitate to nurse these industrious larvæ for three or four months or more previous to their development, and I never had cause to regret this procedure.

The cases of the *Psychidæ* must be put in boxes having a cover of wire gauze, the meshes of which should be proportionate to the size of the larvæ. In the boxes should be put a layer of peat-earth, and then a layer of moss, in order, as much as possible, to imitate nature, and to preserve fresh the plants placed therein. Through the moss must be placed the food-plants, which must be kept fresh and abundant until the larva has finally fixed its case; this is not very difficult, as a large number are polyphagous, and are content with *Poa annua*, or other low-growing plants, common everywhere. It will only be necessary to place the food-plants in the earth, and to water them from time to time. The boxes should always be in the open air, and with an eastern aspect. The rearer of the *Psychidæ* should be convinced that the rays of the sun are never too ardent for them, and that they are indispensable both for the larvæ and pupæ. In order to hasten the development, the boxes may be taken indoors during the night, but they must not fail to be put out again the first thing in the morning.

I regard also, as a condition essential to success, that the *Psychidæ* should not be disturbed, nor even touched, if it be possible to avoid it. When they are finally fixed (I say finally, because as they turn round in their case this is an important matter to them) they expend much vital power, and there is often not sufficient left for their transformation; then the larvæ are compelled to return and feed again. It is therefore highly necessary to watch them, and not to leave them without food until it is certain they have turned to pupæ. When at length no larvæ move, the cases which are not fixed should be suspended from the part which was originally the head-end by a pin fixed in the side of the box.

The feeding up being ended, there remains one point not less important, that is to watch for the appearance of the perfect insects, in default of which the specimens will be spoiled, for the ardent males often scarcely wait to be fully developed before they struggle and hunt after the females, which have sometimes not even seen the light. The moths appear between eight and ten o'clock in the morning; there are some species, however, which do not appear so soon, others which come out in the morning or at night, and one (*Epichnopterix helix*) only at the dusk of the evening. —Georges Rouast. (Translated from the "Feuille des Jeunes Naturalistes," September, 1875).

Larentia cæsiata and ruficinctata (Gn.).—Previous enquiries for information on points which I could not myself work out satisfactorily, having generally proved so unfruitful, I now wish to express my thanks to those entomologists who have kindly answered my appeal at page 7 of this volume, and ask for a little space to supplement and correct my notes on *L. ruficinctata* and *cæsiata*.

When I called *ruficinctata* 'double-brooded,' I had not obtained a second brood myself, but was under the impression that this had been effected in Scotland as far north as the localities where the moth is taken; further enquiry has, however, elicited that the information on which I relied was not well founded; and although Mrs. Hutchinson, at Leominster, has with ease obtained, from moths bred in the month of May, eggs that resulted in a second flight of moths in August, I think it has been made quite plain that the species cannot be properly called double-brooded in its natural condition.

Dr. Chapman tells me that when he lived in Scotland he sometimes bred and captured stray specimens forced out by exceptional circumstances in autumn, but these were small in size, and with subdiaphanous wings,—weakly creatures who could not continue the race, and therefore not in fairness to be taken into account: and he agrees with Dr. Buchanan White that *the* food of this species is *Saxifraga aizoides*.

Cæsiata also has been shown to have but one flight in the year, appearing earlier in England than in Scotland. As to its food, the insect must be called polyphagous, having been found in some numbers feeding on *S. aizoides*, while the larvæ I have received from the north of England have always seemed to prefer whortleberry. Speaking from the experience of others as well as myself, I think it would be found very difficult to rear the larva on ling alone, and that some juicy food would be needed in addition.

Thanks to the kindness of Mr. C. Fenn in forwarding me eggs, I can now supply an omission in my paper. The egg is somewhat more brick-shaped than that of *ruficinctata*, being oblong, with the edges and one end rounded; the shell glossy, with the reticulation so slightly raised, and the enclosed spaces so little sunk, that it might be called embossed rather than reticulated: the colour, five or six days before the hatching of the larva, warm ochreous, afterwards pale dusky. The young larva is pale drab, without lines, the dorsal region having a darker tinge that the rest of the body, with a still darker edging: the head olive brown, rather glossy; the usual dots hardly seen, the bristles simple and extremely short.—John Hellins, Exeter: *September 8th*, 1875.

Habit of larva of Cidaria sagittata.—I find a doubt is expressed in the pages of

the Entomologist's Monthly Magazine (by Mr. C. Barrett, vol. vii, page 278) as to the correctness of the observation, originally made by Mr. A. Fryer, of Chatteris, on the habit of the larvæ of *Cidaria sagittata* gnawing the stems of their food-plant and feeding on the withered leaves. I have much pleasure in sending two pieces of *Thalictrum flavum* found by myself on the 18th ultimo near Chatteris, and which will, I think, bear out the correctness of Mr. Fryer's statement. I took one larva off the leaf which is partially eaten, and one (at rest?) on the stalk of the other specimen, just below the place bitten. I might add I noticed several plants which had been served in the same manner.—Wm. Saunders, 1, Ashley Villas, Boroughbury, Peterborough: *September* 13*th*, 1875.

[The leaves received with their stems partially bitten fully confirm Mr. Saunders' observations.—Eds.].

Spilodes palealis, &c., in Norfolk.—On the 20th of August I took two specimens of this insect, one in my garden at Thetford, and the other in Croxton Parish, three miles distant. Mr. Barrett, in his able paper on Norfolk, says no recent captures have been recorded. *Colias Edusa* and *Hyale* seem to have changed seasons, as I took, in the same locality, *Edusa* on the 24th of June, and *Hyale* at the end of August. For *Pterophorus lætus*, I was chiefly indebted to the keen sight of a kind friend, more accustomed to its rapid flight.—Battershell Gill, 9, Cambridge Terrace, Regent's Park: 13*th September*, 1875.

Spilodes palealis on Barton Moss.—I had the pleasure of capturing a female of the above species on the 21st August, flying amongst the heath, and about seventy yards from the London and North-Western Railway, in the presence of Mr. Robert Kay, of Bury. The insect had been very likely carried on some passing train from some unknown locality nearer than Folkestone.—Joseph Chappell, 1, Naylar Street, Hulme, Manchester: *September*, 1875.

Capture of Crambus latistrius, Haw., at Addington.—On the 19th of August, at the foot of the Addington Hills, next Shirley, I put up among the heather a male of *Crambus latistrius*, but having only a large sweeping-net, I was unable to use it for capture, so there ensued a veritable *chasse du papillon*, and eventually, when we were both tired of running and flying, respectively, I took it from a sprig of heather with a pill-box.—J. W. Douglas, Lee: 13*th September*, 1875.

Psoricoptera gibbosella near Plymouth.—On the 27th ultimo I found this curious little moth in Bickleigh Vale, to the north of Plymouth. Probably it had not been recorded previously west of Bristol, but it has been no rarity in collections since Mr. Barrett 'blew' it off tree-trunks at Haslemere. Provided it does not rain (!), I know of no more charming spot in England, for a naturalist of any kind (or even for the mere tourist), than Bickleigh Vale.—R. McLachlan, Lewisham: *September* 11*th*, 1875.

Note on the odour emitted by Hemiptera.—Is it possible that a bug can develop an ether which, under certain conditions, will cause anæsthesia to itself? Last week

I collected, on some nettles, four examples of *Capsus capillaris* and two *Heterotoma*, all of which I put into a small tube 50 mill. long, and 8 mill. diameter; some time after not one of them moved, although they did not appear to be dead. The odour exhaled appeared to me to be the same as that of the compound ethers known and employed in commerce under the name of fruit-essences; and, corroborating this impression by observing the complete insensibility of the insects, I considered whether they themselves, after having discharged their (supposed) etherial emanations within a restricted and enclosed space, had not succumbed to their anæsthetic action; actually when they had been for some minutes under the influence of a fresh atmosphere, which was charged with a little ammonia, the *Capsidæ* came back to life. The experiment was then tried under a small bell-glass in which I had put a drop of acetic ether to be volatilized, and I obtained a result identical with the former, namely, the same insensibility, the same appearance of anæsthesia, and the same time for recovery.

It seems to me, after these facts, that it may be possible to establish that the emanation from certain *Hemiptera* is a true ether, having the power of affecting even the producers themselves, but I will not venture to assert this, and shall be glad to learn the opinion of such of my colleagues who are more capable than I am to decide the question.—É. Pierret. (Translated from the "Compte-Rendu" of the Société Entomologique de Belgique, 7th August, 1875).

Loxops coccineus in September.—Whilst beating for species of *Psylla* and *Trioza* on the 2nd inst., I took this insect in as fine condition as if it had just emerged from the pupa state. It was, as usual, amongst the bunches of seeds of the ash (*Fraxinus excelsior*), and not uncommon.—John Scott, Lee: *7th September*, 1875.

Note on the larva of Mesovelia furcata.—In the "Notiser ur Sällskapets pro Fauna et Flora Fennica Förhandlingar," xi, 303, 169 (1870), Dr. John Sahlberg described the larva of a species of *Hemiptera* taken in Karelia in 1869 on the leaves of the yellow water-lily *(Nuphar lutea)*, of which larva the imago was unknown to him, and he referred it to a new unnamed genus intermediate between *Hydroessa* and *Velia*. Subsequently he had the goodness to send me an example under the provisional name of *Mesovelia Parra*, but now, having seen recently captured examples of the larvæ of *Mesovelia furcata*, Muls., taken with the imago, I am able to say that they are specifically identical. Dr. Sahlberg was the first to see this species in the larva-form, and he having no means of knowing that it was the larva of *M. furcata*, and it being very unlike the imago, not unnaturally assumed that it was a new species, but his sagacity is shown by his correct reference of it to the genus *Mesovelia*. The habitat is not confined to the water-lily, for the original French example was taken among the *débris* of a marsh, and the English ones among rushes growing in water.—J. W. Douglas, Lee: *August 29th*, 1875.

Capture of Ulopa decussata and U. trivia, Germ.—On the 21st August, at Riddlesdown, where in April last I casually found a single example of *Ulopa decussata (vide ante* p. 15), I spent some hours in searching for more at the roots of the varied herbage that grows thickly round the juniper bushes, but all endeavours to find another one were fruitless. But, half-an-hour before I had to leave, I saw

some young plants of *Galium verum* growing somewhat isolated on a piece of ground from which the turf had been removed, and at the roots of these I found not only *U. decussata*, but also *U. trivia*—five of the former and four of the latter. This then is the secret of their life, and without knowledge of it, patience, and knowing what to look for, the chance of getting the creatures is very slight indeed. It is only by the keenest looking that they can be seen, for they lie without motion, and do not jump when touched. All the examples of *U. decussata* are ♀, and of *U. trivia* are ♂, and they are doubtless the sexes of one species, as Fieber has put them in his "Katalog," but under the new specific name of *Germari*, for which I do not see the necessity. Germar, in his "Magazin der Entomologie," iv, 56, 3, has described another species, *U. lugens*, which he says was taken with *U. decussata*, and although Fieber cites it as distinct, this may be because he did not know it, and it is to me a question whether or not it is any more than a form of *decussata*.—J. W. Douglas, Lee: 25*th August*, 1875.

REVISION OF THE LEPIDOPTEROUS GENUS *EUSEMIA*, WITH DESCRIPTIONS OF NEW SPECIES.

BY ARTHUR G. BUTLER, F.L.S., F.Z.S., &c.

From the date of the publication of Walker's Museum Catalogue to the appearance of Dr. Boisduval's Monograph of the *Agaristidæ* hardly anything had been done towards describing the beautiful and numerous new species of this genus.

The above-mentioned paper, however, professed to add five new species, whilst it overlooked nine, previously recorded by Walker and Moore; the errors of this "Monograph" have, however, been already pointed out by Mr. Kirby (Cist. Ent., pp. 343–347) and by myself (Ann. and Mag. Nat. Hist., s. 4, vol. 15, pp. 135–144), whilst at the same time, I published eight descriptions of new forms. It therefore now only remains to extricate the species from the confusion into which they have got, which can be best done by giving a complete list of them.

Genus EUSEMIA, Dalman.

1.—E. victrix Group.

1. Eusemia silhetensis.

Eusemia silhetensis, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 139, n. 1 (1875).

Silhet *(Doubleday and Argent)*. Type, B. M.

2. Eusemia tyrianthina, *n. sp.*

Wings above blue-black; primaries with two steel-blue spots at the base, and one or two at the end of the cell; two large creamy yellowish spots, placed obliquely

just before the middle of the wing, one within the cell and the other upon the interno-median area; secondaries shot with purple, with a rather wide steel-blue border and black fringe; body as in *E. victrix*; wings below nearly as above, but the creamy spots of primaries united, and the steel-blue spots absent.

Expanse of wings, 3″ 1‴.

N. India. Type, Coll. F. Moore.

3. Eusemia victrix.

Eusemia victrix, Westwood, Cab. Orient. Ent., pl. 33, fig. 3 (1847).

Nepal (*Wright*). B. M.

4. Eusemia orientalis.

Eusemia orientalis, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 139, n. 2 (1875).

Mussooree (*Leadbeater*). Type, B. M.

5. Eusemia nigripennis.

Eusemia nigripennis, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 140, n. 3 (1875).

Ceylon (*Templeton*). Type, B. M.

2.—E. adulatrix Group.

6. Eusemia bellatrix.

Eusemia bellatrix, Westwood, Cab. Orient. Ent., pl. 33, fig. 2 (1847).

N. India, N. Bengal, Moulmein. B. M.

7. Eusemia adulatrix.

Eusemia adulatrix, Kollar, in Hügel's Kaschmir, pl. xx, fig. 1 (1848).

N. India (*Strachey*), Nepal. B. M.

8. Eusemia sectinotis, *n. sp.*

Nearly allied to the preceding species, but deeper in colouring, with the yellow band separated into two large yellow spots; the lower postcellular bifid yellow spot smaller, and the white sub-apical spots rather larger. Expanse of wings, 3″.

E. India and N. India. Type, B. M.

9. Eusemia contracta, *n. sp.*

Smaller than the three preceding species, all the yellow and white spots smaller; the yellow band of primaries united, but strongly incised on each side in the centre; the lower postcellular bifid spot reduced to a mere dot, or pair of dots; the spot at anal angle of secondaries much larger and yellowish instead of reddish-orange; the bands on abdomen bright orange, not red. Expanse of wings, 2″ 6-8‴.

India, B. M.; S. India (*Ward*). Coll. F. Moore.

10. EUSEMIA SIMPLEX, *n. sp.*

Differs from the four preceding species in having the yellow band of primaries narrow and parallel; no postmedian yellow spots; the white discal spots somewhat narrow and elongated; anal spot of secondaries and bands on body golden-orange.

Expanse of wings, 2″ 7‴.

Canara (*Ward*). Type, Coll. F. Moore.

This is decidedly more distinct than the four preceding, all of which, however, are doubtless locally constant, and must, therefore, rank as species.

11. EUSEMIA AFFLICTA, *n. sp.*

Allied to *E. adulatrix*, &c., but with the yellow band of primaries more oblique, and forming an unbroken oblong patch, nearly equal in width from end to end; lower bifid spot rather small; anal spot of secondaries large, golden-orange; bands on posterior segments of abdomen golden-orange.

Expanse of wings, ♂?, 2″ 8‴; ♀, 2″ 7‴.

♂? Matheran, Bombay (*Dr. Leith*), ♀ Bombay.

Type, Coll. F. Moore.

The insect, which appears to me to be a male with the anal valves closed, is marked as a ♀; it, however, has the broad thorax characteristic of a male insect, and is brighter in colouring than the other example (an undoubted female).

3.—E. LECTRIX GROUP.

12. EUSEMIA LECTRIX.

Phalæna Noctua lectrix, Linnæus, Mus. Lud. Ulr., p. 389; Cramer, Pap. Exot., ii, p. 146; pl. 192, fig. c (1779).

China. Four examples, B. M.

13. EUSEMIA MACULATRIX.

Eusemia maculatrix, Westwood, Cab. Orient. Ent., p. 67, pl. 33, fig. 1 (1847).

Silhet. Two examples, B. M.

14. EUSEMIA NIPALENSIS.

Eusemia nipalensis, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 140, n. 4 (1875).

Nepal (*Ramsay*, &c.). Type, B. M.

15. EUSEMIA DISTINCTA.

Eusemia distincta, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 140, n. 5 (1875).

Silhet (*Doubleday*). Type, B. M.

16. EUSEMIA IRENEA.

Eusemia irenea, (De Haan), Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 84, n. 4 (1874).

Khasia Hills. Coll. F. Moore.

—— ? Coll. B. M.

Dr. Boisduval does not mention that the tegulæ are sulphur-yellow. The localities he gives are Timor or Sumatra.

4.—E. VETULA GROUP.

17. EUSEMIA COMMUNIS.

Eusemia communis, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 140, n. 6; pl. xiii, fig. 1 (1875).

Silhet. Type, B. M.; Coll. F. Moore.

18. EUSEMIA COMMUNICANS.

Eusemia communicans, Walker, Lep. Het. Suppl., 1, p. 50 (1864).

India, and *sp. ead.*? Penang. B. M.

19. EUSEMIA VETULA.

Heraclia vetula, Hübner, Zutr. exot. Schmett., figs. 657, 658 (1832).

Java (*Horsfield*). B. M.

20. EUSEMIA FASCIATRIX.

Eusemia fasciatrix, Westwood, Cab. Orient. Ent., p. 67 (1847).

Eusemia bijugata, Walker, Journ. Linn. Soc., vi, p. 85.

Saráwak (*Wallace*). B. M.

21. EUSEMIA CONNEXA.

Eusemia connexa, Walker, Lep. Het., 7, p. 1773 (1856).

Java (*Horsfield*). Type, B. M.

5.—E. BISMA GROUP.

22. EUSEMIA BISMA.

Eusemia bisma, Moore, Cat. Lep. Mus. E. I. Comp., 2, p. 287 (1858–9).

Eusemia Lambertiena, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 83, n. 3 (1874).

Java (*Horsfield*). Type, B. M.

6.—E. DENTATRIX GROUP.

23. EUSEMIA DENTATRIX.

Eusemia dentatrix, Westwood, Cab. Orient. Ent., p. 68; pl. 33, fig. 5 (1847).

Nepal and N. India. B. M.

7.—E. VILLICOIDES GROUP.

24. EUSEMIA VILLICOIDES.

Eusemia villicoides, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 141, n. 7; pl. xiii, fig. 2 (1875).

Hakodadi (*Whitely*). Type, B. M.

Also in Mr. Moore's Collection.

8.—E. EUPHEMIA GROUP.

25. EUSEMIA SUPERBA.

Eusemia superba, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 141, n. 8; pl. xiii, fig. 3 (1875).

Xanthospilopteryx geryon, Wallengren (*nec* Fabricius), Kongl. Svenska Vetensk.-Akad. Handl., 5, n. 4, p. 7 (1865).

♂ Zulu (*Angas*); ♀ Port Natal (*Gueinzius*). Type, B. M.

26. EUSEMIA AFRICANA.

Eusemia africana, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 142, n. 9 (1875).

♂ Durban (*Trimen*), ♂ ♀ Natal (*Gueinzius* and *Gooch*), ♂ Zulu (*Angas*). Type, B. M.

27. EUSEMIA EUPHEMIA.

Phalæna euphemia, Cramer, Pap. Exot., iv, p. 105; pl. 345, fig. A (1782).

♀. *Noctua geryon*, Fabricius, Ent. Syst., iii, 2, p. 28, n. 67 (1793).

W. Africa, Ashanti, Guinea, White Nile. B. M.

That this is the species described by Fabricius (and not the insect referred to *N. geryon* by Wallengren) is proved by the following words in the description:—"Alæ anticæ atræ, *macula oblonga ad marginem interiorem baseos et quinque* in disco flavescentibus."

28. EUSEMIA PARDALINA.

Eusemia pardalina, Walker, Trans. Nat. Hist. Soc. Glasgow, vol. i, p. 5, pl. v, fig. 1 (1869).

Eusemia ochracea, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 142, n. 10 (1875).

Congo (*Richardson*). B. M.

Walker's figure of this species is too brightly coloured, but it unquestionably represents the insect recently described by myself.

29. EUSEMIA CONTIGUA.

Eusemia contigua, Walker, Lep. Het., 1, p. 50, n. 7 (1854).

——— ? (*Milne*). Type, B. M.

30. Eusemia Butleri.

Eusemia Butleri, Walker, Characters Het. Lep., p. 111 (1869).

———? Coll. T. W. Wood.

31. Eusemia longipennis.

Eusemia longipennis, Walker, Lep. Het., 1, p. 51, n. 9 (1854).

West Africa, Ashanti. Type, B. M.

32. Eusemia pallida.

Eusemia pallida, Walker, Lep. Het., 1, p. 52, n. 10 (1854).

———? Type, B. M.

33. Eusemia terminatis.

Eusemia terminatis, Walker, Lep. Het., 7, p. 1587, n. 16 (1856).

———? Type, B. M.

34. Eusemia eriopis.

Agarista eriopis, Herrich-Schäffer, Lep. Exot. Sp., sér. 1, pl. 7, fig. 31.

Madagascar. Coll. R. Stretch.

Allied to *E. terminatis*, but much smaller.

9.—E. agrius Group.

35. Eusemia ? zea.

Eusemia zea, Herrich-Schäffer, Exot. Schmett., fig. 35; Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 74, n. 34 (1874).

Cazamanca.

36. Eusemia agrius.

Eusemia agrius, Herrich-Schäffer, Exot. Schmett., fig. 33.

Madagascar.

37. Eusemia pedasus.

Eusemia pedasus, Herrich-Schäffer, Exot. Schmett., fig. 34.

Madagascar.

38. Eusemia pales.

Eusemia pales, Boisduval, in Guérin's Règne anim. Ins., pl. lxxxiii, fig. 1.

Antananarivo.

10.—E. basalis Group.

39. Eusemia peshwa.

Eusemia peshwa, Moore, Cat. Lep. E. I. Comp., ii, p. 289, n. 663; pl. vii[a], fig. 2 (1858-9).

N. India and Ceylon.

The following species seems allied to *E. peshwa*, and may perhaps be referred to *Eusemia*.

40. Eusemia basalis.

Eusemia basalis, Walker, Lep. Het., i, p. 53, n. 12 (1854).

Bengal. Type, B. M.

11.—E. belangerii Group.

41. Eusemia vittata.

Eusemia vittata, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 143, n. 13 (1875).

Java (*Horsfield*). Type, B. M.

42. Eusemia subdives.

Eusemia subdives, Walker, Journ. Linn. Soc., iv, p. 196, n. 5 (1860).

Malacca (*Wallace*).

43. Eusemia belangerii.

Eusemia belangerii, Guérin-Méneville, Voy. de Belanger, Atlas, Ins., pl. 5, fig. 3.

Java (*Horsfield*). B. M.

44. Eusemia moorei.

Eusemia moorei, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 77, n. 41 (1874); Felder, Reise der Nov. Lep., 4, pl. cvii, fig. 5 (1874).

Java (*Horsfield*). B. M.

Boisduval says that this species is from the Moluccas; but this must be an error.

45. Eusemia hesperioides.

Eusemia hesperioides, Walker, Journ. Linn. Soc., vi, p. 86 (1862).

Sarawak (*Wallace and Low*). B. M.

The example presented by Mr. Low has the tawny band of secondaries continued across the wing.

46. Eusemia pulchra.

Eusemia pulchra, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 143, n. 12; pl. xiii, fig. 4 (1875).

Muhrut, India (*F. Walker*). Type, B. M.

47. Eusemia tricolor.

Eusemia tricolor, Butler, Ann. and Mag. Nat. Hist., s. 4, vol. 15, p. 142, n. 11 (1875).

Sarawak (*Wallace*). Type, B. M.

12.—E. AMATRIX Group.

48. EUSEMIA PROXIMA.

Eusemia proxima, Walker, Lep. Het., 1, p. 50, n. 6 (1854).
Assam (*Warwick*). Type, B. M.

49. EUSEMIA AMATRIX.

Eusemia amatrix, Westwood, Cab. Orient. Ent., p. 68, pl. 33, fig. 4 (1847).
Assam.

50. EUSEMIA CLYMENE.

Eusemia clymene, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 72, n. 30 (1874).
Eusemia amatrix, Boisduval (*nec* Westwood), *l.c.*, p. 63, n. 11.
Java (*Horsfield*). B. M.

51. EUSEMIA ARUNA.

Eusemia aruna, Moore, Cat. Lep. E. I. Comp., ii, p. 288, n. 659 (1858-9).
Darjeeling.

52. EUSEMIA ARRUANA.

Eusemia arruana, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 75, n. 36 (1874).
Aru (*Lorquin*).

53. EUSEMIA VACILLANS.

Eusemia vacillans, Walker, Lep. Het. Suppl., i, p. 51 (1864).
Celebes. B. M.

Excepting in the absence of the tawny band of secondaries, this is extremely like *E. clymene*.

13.—E. VULCANIA Group.

54. EUSEMIA VULCANIA, *n. sp.*

♂. Primaries blue-black, fringe white at apex; a plumbaginous streak across the middle of the cell, and a second on discocellulars; a central group of three sulphur-yellow spots, separated from each other by the median nervure and its first branch, the first spot sub-quadrate and within the cell, the second cuneiform at base of first median interspace, the third considerably larger, sub-ovate and notched internally; four white spots in a nearly straight series beyond the cell; secondaries steel-blue, with purplish and greenish reflections, costa reddish-brown; fringe of outer margin broad and snow-white; head brown; palpi and collar fulvous; thorax black;

abdomen invisible green, anal tuft fulvous; wings below brown, shot all over with bright steel-blue and green; lower yellow spot of primaries divided longitudinally by a black line; costal margin fulvous; otherwise as above: pectus, coxæ, femora, lower margin of tibiæ and tarsi, and venter, orange. Expanse of wings, 2 in. 5 lin.

Burmah. Type, Coll. F. Moore.

This is one of the most striking species in the genus.

55. EUSEMIA EUDAMOIDES, *n. sp.*

♂. Primaries blue-black at base, becoming deep chocolate-brown towards outer margin, apical fringe white; veins at base, a streak across the centre of the cell, and another on discocellulars, plumbaginous; a central group of three spots, nearly as in the preceding species, but pale buff (almost white); a pale buff oblique fasciole beyond the cell; secondaries deep brown, with apical fringe white, a central deep ochreous band, becoming diffused towards costa; head and collar fulvous; antennæ testaceous, annulated with black; thorax black; abdomen deep ochreous, barred with triangular black spots; wings below chocolate-brown, primaries, with costal margin, orange; spots nearly as above, but larger and white; secondaries with the central band broader, otherwise as above; body below deep ochreous.

Expanse of wings, 2 in. 4 lin.

Celebes (*Wallace*). Type, B. M.

This species bears a label with the name *Damias eudamoides;* it is an undoubted *Eusemia*, although the secondaries are rather narrow.

14.—E. ALBOMARGINATA GROUP.

56. EUSEMIA ALBOMARGINATA.

Eusemia albomarginata, Moore, Proc. Zool. Soc., p. 569 (1872).

Burmah. Type, Coll. F. Moore.

I think that *Eusemia funebris*, Moore (*loc. cit.*), must belong to the group which I have lately referred to *Agarista*.

15. E. DOLESCHALLII GROUP.

57. EUSEMIA DOLESCHALLII.

Eusemia doleschallii, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 77, n. 40 (1874); Felder, Reise der Nov. Lep., 4, pl. cvii, figs. 2, 3 (1874).

Amboina.

58. EUSEMIA SEMPERI.

Eusemia semperi, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 76, n. 38 (1874); Felder, Reise der Nov. Lep., 4, pl. cvii, fig. 4 (1874).

Celebes.

59. Eusemia lethe.

Eusemia lethe, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 77, n. 39 (1874); Felder, Reise der Nov. Lep. 4, pl. cvii, fig. 7 (1874).

Celebes.

I have much doubt as to the following species belonging to this genus.

60. ? Eusemia batesii.

Eusemia batesii, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 78, n. 42 (1874); Felder, Reise der Nov. Lep. 4, pl. cvii, fig. 8 (1874).

Moluccas.

61. ? Eusemia lindigii.

Eusemia lindigii, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 78, n. 43 (1874); Felder, Reise der Nov. Lep., 4, pl. cvii, fig. 6 (1874).

Moluccas.

This species closely resembles *Phasis separata*, Walker, an American species.

62. ? Eusemia josioides.

Eusemia josioides, Walker, Lep. Het. Suppl., i, p. 54 (1864).

Gilolo.

Seems to approach the genus *Arctioneura*, Felder.

63. ? Eusemia flaviciliata.

Eusemia flaviciliata, Boisduval, Revue et Mag. de Zool., s. 3, vol. 2, p. 79, n. 44 (1874).

Philippines.

64. ? Eusemia megisto.

Eusemia megisto, Boisduval, Voy. de l'Astrolabe, Lép., pl. v, fig. 5, p. 179; Revue et Mag. de Zool., s. 3, vol. 2, p. 79, n. 46 (1874).

Dorey.

Dr. Boisduval himself says, "It would perhaps be better located "near the genus *Vitessa*, of Mr. Moore."

I believe that I have given reasons for expunging from this genus all the remaining species described as *Eusemiæ* in my paper on the *Agaristidæ* (Ann. and Mag. Nat. Hist., s. 4, vol. 15, pp. 135—144). I would, however, add that, unless *E. mollis* and *E. emolliens* differ sufficiently from *E. lincea* and *E. bambucina* to form a distinct genus, they may be placed with them in the genus *Ophthalmis*.

British Museum: *September*, 1875.

DESCRIPTIONS OF THREE NEW SPECIES OF DIURNAL *LEPIDOPTERA* FROM CENTRAL AMERICA.

BY HERBERT DRUCE, F.L.S., F.Z.S.

Ceratinia Boucardi.

Upper-side, ♂, black. Anterior wing with the base rufous, a large central black spot in the middle of the cell, a band of three yellow streaks near the apex and a sub-marginal row of six white spots. Posterior wing rufous, with the outer margin broadly black, a small black spot at the end of the cell.

Under-side the same as above, with the addition of a sub-marginal band of white spots on the posterior wing. The ♀ differs from the male only in the width of the black margin of the posterior wing, which is much wider and has a sub-marginal band of white spots.

Exp. ♂, 2⅛ inch; ♀, 2 inch.

Hab. Veragua. Mus. Druce.

I have much pleasure in naming the above new species after Mr. Boucard, through whose kindness I have been enabled to add many beautiful specimens to my collection.

Ceratinia Mylassa.

Upper-side, ♂, anterior wing black with the base rufous, a large bright yellow spot at the end of the cell; a band of four yellow spots, the first on the costal margin small, the fourth nearest the anal angle large, and a sub-marginal row of seven yellow spots, the three at the apex are the largest. Posterior wing rufous with a black spot at the end of the cell, the outer margin blackish.

Under-side, anterior wing the same as above; posterior wing with the costal margin broadly black; the black spot as above, and three white spots at the apex.

Upper-side, ♀, anterior wing the same as the in male, but with the yellow spots much smaller; posterior-wing, the outer half broadly black, a rufous spot near the apex, and a sub-marginal row of white spots.

Under-side, the same as above.

Exp. ♂, 2⅛ inch; ♀, 2⅜ inch.

Hab. Veragua. Mus. Druce.

Ithomia Pagasa.

Upper-side, ♂, black; anterior wing crossed beyond the middle by a semi-transparent band of pale yellow, beyond which, and close to the costal margin, is a large yellow spot, two white spots near the apex, and one below, nearer the anal angle. Posterior wing black, crossed in the middle by a broad yellow band.

Under-side, the same as above, except that both wings have a sub-marginal row of white spots. Female the same as the male.

Exp. 2 inch.

Hab. Veragua. Type, Mus. Druce.

Also in Mus. Salvin and Godman.

The above species is allied to *I. Zelica*, Hew., but differs from that species in many respects.

London: *October*, 1875.

DESCRIPTIONS OF THREE NEW SPECIES OF *TENTHREDINIDÆ* FROM SCOTLAND.

BY P. CAMERON, JUN.

Nematus Cadderensis, *sp. n.*

N. breviusculus, nitidus, luteus, antennis articulis 2 primis, maculis 2 vel 3 mesonoti, abdomineque dorso fere toto nigris; coxis, trochanteribus, tibiisque pallidis, tarsis posticis fuscis; alis amplis, hyalinis, stigmate testaceo. ♀. *Long. fere 4 lin.*

♀. Antennæ a little longer than the abdomen, luteous, the two basal joints black; the 3rd, 4th, and 5th joints almost equal in length, the remaining joints shorter. Head bright luteous; the ocelli brownish; the labrum and clypeus whitish-yellow; the antennæ at the base surrounded with black. Thorax bright luteous, shining, finely punctured; the pronotum slightly paler than the mesothorax; two (often three) black longitudinal stripes are on the mesonotum: the large white cenchri are surrounded with black. Abdomen short, thick, and broad, of a like colour to the thorax, the upper surface from the base to the commencement of 2nd last segment black; the cerci are very short, hairy, and of a pale yellow colour, the anal segment also hairy; the triangular incised part at the base of the abdomen pale yellow. The sheaths of the saw are faintly marked with black. Feet pale luteous; the coxæ, trochanters, and tibiæ whitish-yellow; the posterior tarsi with the apex of the posterior tibiæ pale fuscous; claws toothed. Wings longer than the body, hyaline, iridescent, with a decided fuscous-yellowish tinge; the costa and stigma testaceous, nervures black; the 2nd recurrent nerve is received a little in front of the sub-marginal one. The entire body is covered with a close whitish down.

The ♂ has the antennæ entirely black, sometimes faintly fuscous at the base, shorter and thicker than in the ♀, and tapering considerably towards the apex. The head (mouth excepted), meso- and meta-thorax, and abdomen above, black. The wings are shorter in proportion to the body than in the ♀. In some specimens, the eyes are surrounded with luteous.

Larva.—Head smaller than the 2nd segment, the colour intensely black, and the surface covered with a slight microscopic down, and somewhat punctured; the sides of the mouth slightly greenish. Feet glassy greenish-white, with black claws, the claspers light green. The body above is of a beautiful dark sea-green colour, and the lower half of the sides is whitish. On the sides, are ten large oval orange spots, each divided by the folds of the skin into two parts, which are however closely continuous. Below the orange marks, is a row of roundish irregular dots, and below these again, and directly over the feet, is a row of oblong longish black spots. Over the orange spots, is a line of close continuous black dots, of irregular shape, but somewhat oval. These marks proceed from the 2nd to the 12th segment. On the back at the termination of the segments, are two rather small roundish black dots. Directly over the anal segment is a large black spot, much larger than any of the other marks, and the last segment is also beset with a few longish hairs. The cerci are black, white at the base. The lower part of the body is white. In shape the larva is identical with that of *N. melanocephalus*, and the length is about 1¼ inch.

The pupa is green.

The larvæ I found feeding on *Salix cinerea* in August, on the hills between Port Glasgow and Greenock; and I have got them feeding on birch in Cadder Wilderness, Rannoch, and Kingussie, in June, July, and August. They eat along the edge of the leaves in a similar fashion to the larvæ of *N. melanocephalus*. The cocoon is double, and, in confinement, was spun either in the earth or between the leaves; the flies made their appearance in July, and from the late-feeding brood in the following spring, there being evidently two broods in the year. In some of the cocoons the outer covering is separated by a considerable space from the inner one.

Comparing this species with specimens of *N. croceus*, Fall. (= *fulvus*, Htg.), taken in the same localities, it is seen that the antennæ in *Cadderensis* are shorter and thicker; the abdomen is also shorter, and at the same time broader and rounder: further, the cerci are shorter, and the wings in *croceus* are much clearer, these in *Cadderensis* having a decided yellowish tinge; the clypeus in the latter species is apparently deeper notched; but all these are characters in which both species tend to vary, and I am at a loss to point out distinctions that will serve to discriminate the two species. We seem to have here a case like in *Lophyrus similis* and *L. pini*, where two very differently marked larvæ produce very similar imagos; and, in the present instance, there is another interesting peculiarity, viz., the very great resemblance which the larva of *Cadderensis* bears to that of *N. melanocephalus*, the only apparent mark of distinction being, that in the former the orange marks are nearly (if not quite) free from the black marks; while in the latter, these go through them in the middle.

It is also worthy of remark that the imagos produced from the willow-feeding larvæ are smaller and darker coloured than those got from birch, and the willow larvæ had besides a much brighter green colour.

I have submitted specimens of *N. Cadderensis* to Dr. van Vollenhoven and to Professor Zaddach; the former gives as his opinion that it cannot be distinguished from his *N. trimaculatus* (Tijdschr. Ent. Deel v, 69, pl. 4), while the Prussian naturalist is equally sure that there is no way of separating it from *N. croceus;* but the discovery of the larva clearly shows that it is really a distinct species.

N. trimaculatus, Voll., is I think only a var. of *N. croceus*. The *N. trimaculatus*, Lep., is doubtless the gooseberry pest.

With regard to *N. melanocephalus*, it may be useful to give its synonymy, as it has been involved in no little confusion.

Tenthredo salicis, De Geer, Mém. ii, 259, 14, tab. 37, figs. 12—21; *Nematus melanocephalus*, Hartig, Blatt- u. Holz-wespen, 219, 52; *N. perspicillaris*, Brischke, Beschr. etc. der Blattwespen Larven, 7, pl. 1, fig. 3; *N. salicis*, Thomson, Hymen. Scand., i, 141, 70.

The species was not known to Hartig, who merely abstracted De Geer's description, and applied the name of *melanocephalus* to it, he rightly remarking that it is not the *Tenthredo salicis*, Lin. But Thomson has judged otherwise, and he has renamed the *Nematus salicis*, Hartig (which that author considered to be identical with *T. salicis*, Lin., and in my opinion he is perfectly correct in doing so), *inflatus*, and adopted the name of *salicis* for the other species. It seems to me, however, that the only safe course is to use Hartig's name for De Geer's insect, unless an earlier name be discovered.

Nematus dorsatus, *sp. n.*

N. nitidus, rufo-luteus, antennis (vel suprà), mesonoti lateribus, metanoto, abdominisque dorso pro parte nigris; ore, trochanteribus, tibiisque pallidis; alis flavescenti-hyalinis, stigmate flavo-testaceo, basi vel nigro.
Long. 3½ *lin.*

♀. Antennæ shorter than the body by about three-quarters of a line, filiform, tapering slightly towards the apex, 3rd and 4th joints equal, the rest a little shorter; the colour is luteous, with a black line above the whole of the joints, or more usually only above the first two. Head luteous, covered with a whitish down, the portion below the antennæ and the outside of the eyes white; clypeus deeply notched; the tips of the mandibles brown; palpi pale; the clypeus and surrounding parts densely covered with white hair; the ocelli black. Thorax luteous, densely covered with down; the pronotum paler; breast luteous, very smooth and shining; the sides of the mesonotum and the metanotum black; cenchri prominent, white. Abdomen luteous, and at the base narrower than the thorax, and from that it gradually decreases in width towards the apex, which is acuminate; the dorsal surface (especially on the basal part) more or less marked with black; cerci very long, the saw considerably exserted. Feet pale luteous; coxæ, trochanters, and tibiæ, whitish. Wings hyaline, faintly yellowish, the costa, stigma and nervures (except at the apex) yellow-testaceous. The 1st sub-marginal nervure is very faint; the 2nd sub-marginal cellule is about a quarter longer than the 3rd; the 2nd recurrent nervure is nearly joined to the 2nd sub-marginal. In the under-wing what Thomson calls the "nervus recurrens" is joined to the "nervus transversus ordinarius," which is not the case in *N. luteus*. Aberration: *a*, stigma black at the base; *b*, dorsal surface of abdomen devoid of black; *c*, posterior wings smoky.

The ♂ is unknown to me.

Larva.—Full fed. Body cylindrical. Head brownish-red, mouth black; eyes situated in a longish black splash, which extends from the vertex. Body to the middle of the sides brownish-red, obscured with black, the black tint being deeper

on the sides than on the back; the lower part of the sides and anal segment reddish-brown, without any black markings, the last segment hairy. The skin is smooth and shining; the feet reddish-white. Length, 11—12 lines.

The larvæ feed on birch, and walk very fast and restlessly, and when touched by anything the body is lashed about furiously. The flies I have taken from June 8th (which is the earliest date I have noted) to the end of that month; the earliest larvæ I have seen were on the 10th of the same month; and again I find them at the end of July and in August. From a larva which spun up on the 31st July I reared the imago fifteen days after; and from these observations it is clear that the species is double brooded. The cocoon (which is double) is spun in the earth.

This species differs mainly from *N. luteus* in having the abdomen acuminate, with its dorsal surface black; in the face being more sharply pointed; and in the above-mentioned difference in the alar neuration. In addition to this, the habits and coloration of the respective larvæ are totally different. It has clearly a near relationship to *N. acuminatus*, Thoms., and I formerly considered it a variety of that species; but Prof. Zaddach tells me that he has a specimen of the true *acuminatus*, and that it does not agree with mine; moreover, Thomson's species has the breast black.

N. dorsatus has occurred in Inverness-shire, Rannoch, and Bishopton, and is not an uncommon species.

And now a few words regarding *Nematus luteus*. In Scotland, three color varieties of it occur: first (and this is by far the rarest) there is the entirely luteous form, which seems to be the commonest on the continent, and is that described by Thomson; second, there is the very common form, with the edges of the mesonotum and metanotum black; and third, there is a variety similarly coloured to the last, but having besides three (sometimes two) black marks on the mesonotum. That this last form really belongs to *luteus* is certain, from my having reared it from the ordinary larva. It seems not to have been described by any author, unless it be var. *b.* of *N. Klugi*, (Dbm.) Thoms. (= *bilineatus*, Klug), which very closely resembles it. *N. Klugi* (typical form) is without any doubt a good species. I have a specimen that I believe pertains to it, which I took in Glen Feshie.

The only author who has described the larva of *N. luteus* is Kaltenbach (Die Pflanzen-Feinde, 619). It may be found very commonly on the alder, resting on the upper surface of the leaf, and eating holes in its centre in a like fashion to the larva of *Hemichroa luridiventris*. It has the head of an obscure greenish-yellow colour, with a brown

mouth and two black marks on the vertex, and covered closely with short hairs. The feet are light green, and are almost hidden by the overhanging folds of the body; the claws are brown. The body is flat, tapering towards the end, its colour is green, not unlike the colour of the alder leaf, and the skin is studded over with minute white tubercles, fourteen or fifteen to a segment, their number decreasing towards the anus; the skin at the sides has some hairs attached to it. Length, from 8—10 lines. The cocoon is very close and compact, and is spun in the earth.

It is very like the larva of *N. abdominalis*, but may be easily known from it by the two marks on the head.

PHÆNUSA ALBIPES, *sp. n.*

P. nigra, nitida, antennis longis; pedibus albidis; tarsis posticis fere fuscis; alis fumatis. ♀. *Long. fere* 1½ *lin.*

Black, shining, covered sparsely with a very short pile, only visible in certain lights. Antennæ a little shorter than the body, slightly pilose; the 3rd joint longer than the 4th. Feet entirely white, posterior tarsi and tips of anterior faintly fuscous. Wings smoky, costa, nervures, and stigma black; the marginal nervure is received a little past the middle of the 2nd marginal cellule. Sheaths of the saw and saw itself largely projecting.

It comes near to *P. pygmæa*, but is readily distinguished from it by its longer antennæ, black tegulæ, and almost entirely white legs.

Taken in a rose bush, in Cadder Wilderness, on 20th August last.

It may be here pointed out that *Phyllotoma tormentillæ*, Healy (Ent., iv, 135), *Fenusa pygmæa*, Healy (Ent., v, 300), Kaltenbach (Die Pflanzen-Feinde, 225 and 227), = *Fenella nigrita*, Westwood.

Glasgow: *October 7th*, 1875.

DESCRIPTION OF AN ADDITIONAL SPECIES TO THE LIST OF BRITISH *HEMIPTERA*.

BY EDWARD SAUNDERS, F.L.S.

MACROCOLEUS TANACETI.

Phytocoris tanaceti, Fall., Hem. Suec., p. 83, No. 13.
(*nec Oncotylus tanaceti*, Fieber, Dougl. and Scott).

♀. Sub-oval; golden or orange-yellow, or greenish-yellow, densely covered with black bristly hairs, sparingly intermixed on the head, thorax and scutellum with a few whitish ones. Membrane subpellucid, nerves golden-yellow, surrounded by a dusky cloud, cells clouded. Under-side palely pubescent with a few black bristly hairs, legs covered with black hairs, tibiæ with strong black spines. Antennæ hairy.

Length, 2 lines. On *Tanacetum vulgare*. Chobham, Surrey.

Closely allied to *M. molliculus*, but differing from it in the colour and the absence of the dark band, and the downy pubescence so characteristic of that species.

I am very glad to be able to add this species again to our list, especially as I was obliged to sink the species described under the name *tanaceti* by Messrs. Douglas and Scott, as a synonym of *Tinicephalus hortulanus*. I may say that Mr. Scott quite agrees with me that the above is Fallén's true species.

Thus far, I have only found the ♀, but hope to get the ♂ next year,—the latter seems to be very rare, as Dr. Reuter (who finds the ♀) says in his excellent book on the Capsidæ of Finland, "Mas mihi incognitus."

2, Spencer Park, Wandsworth:
13*th October*, 1875.

OBSERVATIONS ON SOME SPECIES OF *BOLITOCHARA*, WITH DESCRIPTION OF A NEW EUROPEAN SPECIES.

BY D. SHARP, M.B.

Considerable discrepancy prevails in the European collections as to the names of some of the common species of *Bolitochara*, and I have for a long time been in doubt as to the correct names of the species in my own collection. The recent publication of the part of Mulsant and Rey's "Histoire Naturelle des Coléoptères de France," treating of the "Bolitocharaires," has enabled me to satisfy myself about certain of the points that were doubtful to me, and has also convinced me that I have a new species in my collection. Rey describes in the work alluded to six species, viz., *B. lucida*, *B. elongata*, *B. flavicollis*, *B. lunulata*, *B. obliqua*, and *B. varia*; and two of these, viz., *B. elongata* and *B. flavicollis*, he considers to have been unknown to Erichson. The first of these, viz., *B. elongata*, is undoubtedly a quite distinct species from *B. lucida*; but it is not the *Bolitochara elongata* of Heer, as M. Rey supposes. A considerable portion of the types of Heer's species of *Staphylinidæ* came into my possession with Castelnau's collection, and among these types are three individuals of *Bolitochara elongata*, Heer; these specimens are *B. flavicollis*, Rey, with which insect, moreover, I consider that the description of Heer fully agrees (it is inapplicable to *B. elongata*, Rey). I think, therefore, it would be undesirable to use the name *B. elongata* a second time, and would propose to call this species *B. Mulsanti*.

As regards the second of Rey's new species, viz., *B. flavicollis*, I feel pretty certain that it is the *B. lunulata* of Erichson and Kraatz, while *B. lunulata*, Rey, is the same as *B. bella*, Kraatz. I have received specimens of *B. bella* from M. Ch. Brisout de Barneville, under the name of *B. lunulata*, and M. Fauvel formerly named individuals of *B. bella* as *B. lunulata* for Mr. Crotch, while Rey himself tells us that a number of specimens of *B. bella* sent to him by Dr. Kraatz are not distinct from *B. lunulata*. The descriptions of Rey moreover fully support this view.

I consider the synonymy to run as follows:—

1. *Bolitochara lucida*, Er., Kr., Rey.
2. *Bolitochara Mulsanti.*
   elongata, Muls. & Rey.
3. *Bolitochara lunulata*, Er., Kr.
   elongata, Heer.
   flavicollis, Muls. & Rey.
4. *Bolitochara bella*, Maerk., Kr.
   lunulata, Muls. & Rey.

The following new species should be placed between *B. Mulsanti* and *B. lunulata*.

Bolitochara Reyi, *n. sp.*

Rufescens, elytris versùs angulos posteriores, abdomineque ante apicem, fuscis; capite thoraceque subtiliter punctatis, hoc elytris multo angustiore; elytris sat fortiter punctatis, fere æqualibus.

Long. corp. 2¼ *line.*

Antennæ fully ¾ lin. in length, reddish, the three basal joints a little paler than the following ones, and the eleventh also slightly paler than the preceding ones, the fifth joint not at all transverse, and the tenth very nearly as long as broad, the terminal joint very long, almost as long as the three following together. Head reddish, broad, much narrowed towards the neck, the eyes large, the surface rather closely, but not very distinctly, punctured. Thorax reddish, much rounded and narrowed towards the front, in the middle in front of the base with a rather large fovea, the surface on the disc distinctly, and rather closely, punctured, at the sides very sparingly and indistinctly. Elytra broad, at the shoulders much broader than the base of the thorax, reddish in colour, slightly darker behind the scutellum and distinctly so towards the outside at the extremity, rather closely and roughly punctured, only slightly sinuate at the outer angle of the hind margin, a little depressed behind the scutellum. Hind-body broad, reddish, the penultimate segment infuscate, the surface rather coarsely and moderately closely punctured.

I obtained the only specimen I have seen of this species from Castelnau's collection; it is a female, and was labelled "*Bolitochara lucida*, P.," the "P" meaning Paris; Castelnau, I believe, received the specimen with Gautier des Cotte's collection.

The species is extremely similar in form to *B. lucida*, but is rather broader, and has the antennæ longer, the terminal joint being very distinctly longer; the head and thorax are more finely punctured, and the elytra are very nearly without the conspicuous depressions of *B. lucida*. Its larger size, more elongate antennæ, and thorax more rounded and narrowed towards the front, readily distinguish it from *B. lunulata* (*flavicollis*, Rey).

I have much pleasure in naming this conspicuous species in honour of the talented entomologist of Lyons, to whom we owe the recent parts of the "Histoire Naturelle des Coléoptères de France."

Thornhill, Dumfries:
October, 1875.

Note on Orchestes semirufus, Gyll.—I have, on several occasions during the past summer, beaten from wild cherry at Woking, examples of an *Orchestes*, differing from *semirufus* in having the tarsi and club of antennæ (pitchy or) black, and in some examples the tibiæ and femora pitchy; and from *scutellaris*, besides these characters, in being always smaller, of a darker colour, and with the head, thorax, and rostrum black. Not one of those taken (about 30) exhibits the clear red head (excepting the eyes, which are often pitchy), thorax, and limbs of *O. scutellaris*. *O. semirufus* has been referred as a variety to *scutellaris*, and my specimens above noticed appear to be even darker than those mentioned in Ent. Mo. Mag., x, p. 18. M. Ch. Brisout (Ann. Soc. Ent. Fr., 1865, p. 271), in his Monograph, refers to one example only in which the knees and apex of the tibiæ are rather widely darkened. I have captured ordinary *scutellaris* also on wild cherry, but never in company with these dark insects: the former appears to be of more northern distribution.—G. C. Champion, 274, Walworth Road, London, S.E.: *October*, 1875.

Note on Otiorhynchus monticola.—The Irish specimens of an *Otiorhynchus* recorded by me at p. 82 of this vol. as *monticola*, Germ., appear to me, from an examination of a very long series of our ordinary northern species recently referred to *O. blandus*, to be only an extreme form of the latter.—Id.

[The description of *O. blandus*, Schön. (1836), reproduced by Stierlin, does not in the least accord with these Irish specimens; it says "*elytris subtiliter vage punctulatis, vix striatis*," and the chief differential point between *blandus* and *monticola* is therein stated to be that the striæ of the elytra are scarcely perceptible. *O. lævigatus*, Gyll. (1813), identified by Thomson with *blandus*, has the elytra "*subtilissime punctato-striata, interstitiis planis, adhuc subtilius crebre et vage punctulatis;*" and this also does not at all agree with the Irish insects. Thomson makes Gyllenhal's *lævigatus* the type (he could not adopt his *name*, on account of the long prior and different *lævigatus* of Fabricius), terming the elytra "*punctato-striatis, interstitiis rugulosis*," and, adopting Schönherr's name *blandus* for the species, sinks the latter's insect as a variety, saying that the elytra have the striæ conspicuous only at the base and sides, "*interstitiis subreticulato-strigosis.*" Supposing Thomson to be correct in refer-

ring these different points of structure to the same species, a further var. is required to include the Irish specimens, "*elytris evidenter sat grosse striato-punctatis, interstitiis sub-elevatis;*" and it is then easily seen how our correspondent has been misled, if, indeed, it be not necessary to rename a species which so contradicts its own characters; as the original *blandus* is stated by its author to be distinguished by the absence of the very features it is now stated to possess.—E. C. R.]

Note on Chrysomela marginata.—This species, originally found, I believe, near Pegwell Bay, near Ramsgate, seems decidedly scarce on this side of the border, though not so uncommon in Scotland, where it has been found by Dr. Syme in Orkney (on *Plantago maritima)*, and by Mr. Champion at Braemar by sweeping alongside the Dee. Near Edinburgh it is not uncommon, though very local. As far as I know, it is confined to one particular spot on Arthur's Seat, a much exposed valley between the summit of the hill and a lesser peak known as the Lion's Haunch, about 700 feet above the sea, where the grass forms a short velvety turf, and the surface of the ground is covered with scattered fragments of the neighbouring basalt rocks. Beneath these fragments *Chrysomela marginata* is to be found, singly, or in twos and threes. When disturbed, it persistently feigns death. It begins to appear about the middle of June, and is most common about the first week in July, when I have taken as many as thirty specimens in the course of an afternoon's work, by assiduously turning over stones, &c., in its locality. I have never seen the larva or pupa, and do not know for certain what its food-plant at Edinburgh is, as no *Plantago maritima* grows near. The short turf of the hill is composed in great part of millefoil *(Achillea millefolium)*, and on that the beetles may feed, as some I kept in captivity fed voraciously on this by night, returning to their shelter at the bottom of the plants by day. I have never seen it moving about in the day-time like its congeners *C. menthastri* and (according to Mr. Champion) *cerealis*, but have only found it under the stones. In Wilson's "Entomologia Edinensis," the Calton Hill is also given as a locality, but I have never found it there, chiefly no doubt owing to my not having looked there at the right time.—W. A. Forbes, West Wickham, Kent: *17th September*, 1875.

On the metamorphoses of Melöe cicatricosus.—On the 11th April, I took a pair of this species coupled, and put them under a bell-glass perforated at the top in a vase, in order to feed them with lucern, chickweed, grasses, &c., all of which they ate. On the 1st May, the female had scooped out in the earth a nest, an inch in length and depth, in which she laid 1500 to 2000 eggs of an orange-yellow, after which she very artistically hid the opening by a stopping of masticated leaves and earth. These eggs hatched on the 14th June, and from them came out the kind of larva well known under the name of *Triungulin*, Dufour, and figured by De Geer, Réaumur, Newport, Jacquelin-Duval, &c. I knew that these larvæ climbed on to *Hymenoptera*, in order that they might thus be carried into their nests, where they undergo their metamorphoses, indeed, I amused myself by causing them to climb on to flowers and thence to jump on to all the *Halictus*, *Osmia*, *Megachile*, &c., that I presented to them. But I wished to follow them further, and this was not possible while they were at liberty.

I then conceived the idea of putting some honey into a glass tube, and upon it an egg drawn from the abdomen of a *Vespa vulgaris;* finally, seizing with my pliers

the abdomen of *Halictus*, ♀, the sting of which was well exserted, I presented it to a *Triungulin*, which at once climbed on to it. I then moved the sting up to the egg of the *Vespa vulgaris*, and had the pleasure of seeing the little larva of *Melöe* pass on to the egg.

This occurred on the 26th June. I closed the tube, and, lens in hand, followed the proceedings of my pupil. I proved that it ate or sucked the egg, and in its somewhat transparent body I could see that it absorbed the nutrition. It increased, its annulations swelled, the corneous plates of each segment which had touched each other were separated by a tender transparent skin; and at length, on the morning of the 1st July, that is, in five days, the first moult took place, the thorax was split open, and I saw an elongate larva of a citron-yellow colour with a pale head and two black eyes issue from the *Triungulin*, and rush boldly into the honey. What will become of it in this glutinous liquid so little like both in taste and odour to the nauseous honey of the *Anthophoridæ?* The future will tell me; at present, five or six hours have elapsed and the larva does not seem displeased, for it swims and frisks about like a fish in water.

This is probably the first time that the rearing of *Melöe* has taken place with a feeding-bottle; I have obtained the first and second larva-forms, and I will hereafter report if the three or four other forms have also been successfully assumed.—Jules Lichtenstein. (Translated from the "Compte Rendu de la Société Entomologique de Belgique:" *July*, 1875.)

Exportation of Humble-Bees to New Zealand.—Two nests of English Humble-Bees were last week sent to New Zealand, by Mr. Frank Buckland, for the Canterbury Acclimatisation Society. These insects are specially desired in New Zealand for the purpose of fertilising the common clover; the proboscis of the common bee is not sufficiently long to reach down to the pollen of the clover flower, while the humble-bee is enabled to do so. In this way, the insect is expected to do great service to the agriculturist by largely extending the growth of the clover. The bees were packed in their own nests in two boxes, and will be under the charge of a Member of the New Zealand Council, who is provided with every necessary for their welfare during the voyage. They are expected to arrive about the middle of January—Midsummer at the Antipodes.—Extracted from "Nature:" *14th October*, 1875.

Note on Trapezonotus distinguendus, Flor, and its allies.—In his "Synopsis of the British Hemiptera," just published in the Transactions of the Entomological Society, Mr. E. Saunders puts *Trapezonotus distinctus*, D. and S., as a variety of *Pachymerus distinguendus*, Flor; but this does not exactly settle the question,—and thereby hangs a tale.

Pachymerus (P.) distinguendus was described by Flor (Rhyn. Livl., i, 266, 21, 1860) as having black antennæ, with the *second* joint yellowish-red in the middle (Glied 2 in der Mitte gelbröthlich). In the second volume, p. 584, he again alludes to the species, comparing it with *T. agrestis* and *T. convivus*, but says not a word about any error in his former description.

Trapezonotus distinctus, D. and S., was described in "The Entomologist's Annual," 1863, and again in the "British Hemiptera," i, 191, 1 (1865), as having black antennæ with the *third* joint having a broad red ring in the middle.

In the "Wiener entomologische Monatschrift," viii, 215, 14 (1864), Fieber described *Trapezonotus distinctus*, D. and S., and *T. distinguendus*, Flor, as distinct species, but *both* as having the *third* joint of the antennæ red in the middle (Glied 3 rosröthlich, am Grund und Ende schwarz). This is remarkable, for he says he had the original example of *distinguendus* from Dr. Flor for inspection.

In the "Stettiner ent. Zeit.,' xix, 181, 23 (1858), Dr. Stål described *Rhyparochromus convivus* as "articulis 2° et 3° antennarum medio late flavescentibus." In the "Öfv. k. Vet.-Ak. Förhandlingar," p. 55 (1872), he repeats this, placing the species under the genus *Trapezonotus*, and adds, as a separate species, *T. distinguendus*, Flor, but describing the antennæ as "articulo *tertio* pallide annulato."

In his "Opuscula Entomologica," ii, 192, 28 (1870), Thomson has *Lygæus convivus*, Stål, = *distinguendus*, Flor; but he says of the antennæ "articulo *tertio* fere toto rufo," which is not correct for either.

According to descriptions, there are four allied species of *Trapezonotus*:—

1. *distinguendus*, Flor, *nec* auct. (= *convivus*, Stål, *sec.* Thoms.).
2. *distinguendus*, Fieb., Stål, Saund., *nec* Flor.
3. *distinctus*, D. and S., Fieb. (= *distinguendus*, Flor, *sec.* Saund.).
4. *convivus*, Stål, *nec* Thoms.

The question therefore to be decided is whether the above-named are really four species or only forms of one, and I commend it to the attention of those hemipterists who have access to type-examples.—J. W. Douglas, Lee: *14th October*, 1875.

Notes on some species of Corixa.—In the "Öfversigt af K. Vet. Ak. Förhandlingar," 1854, Pastor Wallengren described as new four species of *Corixa* under the names of *Fieberi*, *vaga*, *variegata*, and *vernicosa*. Several months ago, the worthy Pastor sent an example of each for my inspection, and I having returned them to him by the hands of Dr. John Sahlberg, the latter writes that he quite agrees with my determinations, which are as follows:—*C. Fieberi* and *C. vaga* = *C. hieroglyphica*, Duf.; *C. variegata* = *C. intricata*, D. and S., which latter name will be superseded; *C. vernicosa* is a distinct species allied to *C. Linnei*, Fieb., but not yet detected in Britain.

In the "Notiser ur Sällsk. pro Fauna et Flora Fennica Förhandlingar," t. xiv (1875), Dr. J. Sahlberg has a monograph of the Finnish *Corixæ*, which is of interest to us, especially with regard to the British species.

C. sodalis, D. and S., is admitted to be a good species, but *C. socia*, D. and S., is put as var. *b* of *C. præusta*, Fieb.; it appears to me, however, that the differences of marking on the elytra and tarsi are sufficient to give it rank as a species in default of absolute proof to the contrary.

C. nigrolineata, Fieb., is reckoned as = *C. Fabricii*, Fieb., but I look upon this as very doubtful. *C. decora* and *C. dubia*, D. and S., are supposed to be varieties of the species thus constituted; but I now look upon *C. decora*, of which I have only the single original example, as an immature *C. perplexa*, D. and S., to which I also refer the subsequently described *C. Whitei*, D. and S., all of which have the marginal channel of the elytra pale; and *C. dubia* may be regarded as a form of *C. nigrolineata*.

C. Sharpi, D. and S., is identified as = *C. cognata*, Fieb., and the still older *C. carinata*, Sahlb.

Two new species are described, which not improbably may be found in North

Britain, viz.:—*C. Wallengreni*, like *C. fossarum*, but with the head much broader than the thorax, and rather narrower than the body, &c.; *C. pallidula*, like *C. Fabricii*, but nearly one-half smaller, head larger, colour paler, &c.—ID.: *1st October*, 1875.

Note on Typhlocyba hyperici.—Yesterday, a warm and sunny day, I made the acquaintance, for the first time in life, of this pretty, shy, dusky wood-nymph in a part of Darenth Wood where, within a restricted space, *Hypericum perforatum* grows plentifully among the young underwood. For the capture of such skittish creatures as the *Typhlocybidæ* an umbrella or wide net is of little use, for they fly out of it directly, so I went provided with a round butterfly-net, and by placing it under the *Hypericum* plants, and then tapping them with a stick, I had the pleasure of getting a few examples of my desideratum. Even when thus in the net, they are only half caught, for, mixed up with dry leaves and capsules of the food plant, they are not conspicuous while they rest, and when they jump the presence of four or five examples of other species, trapped at the same time, all performing the same mad antics from side to side of the net, distracts attention from the coveted one (I never had more than one such in the net at a time), and delays the moment when a quill can be put over it. I know but of two other British examples, taken by the Rev. T. A. Marshall, and the species is noted as being rare in collections everywhere, which, considering the restricted habitat, the time of appearance, and the difficulty of capture, is not to be wondered at.—ID.: *8th October*, 1875.

Notes on Lepidoptera from the Isle of Man.—I had two or three days collecting at Onchan in the Isle of Man in the middle of August last, but *Lepidoptera* were very scarce, and the only two species taken, not already recorded as occurring on the island, so far as I am aware, were *Stilbia anomala* and *Crambus geniculellus*. The former flew at dusk on the cliffs, and the latter was very freely beaten out of furze bushes in the day-time, along the top of the cliffs. By shaking and collecting seed-capsules of *Silene maritima*, I secured larvæ of *Dianthœcia capsophila* and *cæsia*, and I think another species of the genus. Imagos of *Polia nigrocincta* and the red var. of *Cirrhædia xerampelina* were not yet out, although I sugared the rocks well for the former, and the ash-trees for the latter.—GEO. T. PORRITT, Huddersfield: *October 2nd*, 1875.

Notes on the Lepidoptera of the Pyrenees.—The following list of *Lepidoptera* collected at Argèles (Hautes Pyrénées), may perhaps prove of use to some of your readers. I collected there during the last week of July in this year; but, owing to the exceptionally heavy rains during the first part of the summer, which had never before been experienced by the "oldest inhabitant" of Argèles, the butterflies were not at all plentiful, and many species I expected to find were not seen at all:—*Melanargia Galathea*, abundant everywhere; *Satyrus Megœra; Epinephile Janira, Tithonus; Hipparchia Hyperanthus, fagi*, Scop., rocky places both in valleys and on sides of mountains; *Cœnonympha Arcania*, Lin.; *Argynnis Paphia, Aglaia, Adippe, Lathonia, Dia*, Lin.; *Melitœa Athalia; Vanessa C-album; Pyrameis Atalanta*, very abundant in one shaded rocky glen, and seen nowhere else; *Lycœna Gordius*, Sulz.; *Cupido Icarus, Corydon, Arion; Zephyrus quercus; Leucophasia sinapis; Pieris daplidice*, somewhat scarce, *rapæ, napi; Gonepteryx rhamni; Colias Edusa*, not common; *Papilio Machaon*. Very few moths were taken. *Ma-*

croglossa stellatarum was abundant, and literally swarmed in one small mountain churchyard. *Zygæna filipendulæ* and *Tanagra chærophyllata* were also seen in great plenty, but they did not receive the same attention as was paid to the diurnal *Lepidoptera*.—W. L. Distant, Streatham Cottage, West Dulwich, S.E.

Sphinx convolvuli at Putney.—I took a fine specimen of this insect on one of my windows here early last week.—H. Decastro, Cramlington Villa, Upper Richmond Road, Putney: 13*th October*, 1875.

Sphinx convolvuli at Twickenham.—A fine specimen of this insect was captured on September 30th by Mrs. Boscher of Belle-Vue House, Twickenham, hovering over a Petunia in the garden. I saw another specimen about the middle of the month in the hands of a railway porter at Red Hill Junction.—R. Meldola, St. John's Street, Bedford Row: *October 5th*, 1875.

Sphinx convolvuli at East Grinstead.—A specimen of this insect was observed, on several consecutive evenings during the latter part of September, hovering over the flower beds in the quadrangle of the Sisterhood of Saint Margaret's, at East Grinstead, Sussex.—Trovey Blackmore, The Hollies, Wandsworth: *October*, 1875.

Sphinx convolvuli at Watford.—Seven specimens of this usually scarce moth have been, to my knowledge, taken in Watford during the past few weeks. Two or three have been found at rest in early morning upon door-knockers. One, a fine male, so taken by one of our letter-carriers, has been given to me by its captor. I saw one flying over some plants of the Japan lily *(Lilium auratum)* in Mr. Clarence Fry's garden here, but failed to take it. Mr. Fry has since captured one hovering over his petunia bed, and has seen a second, which has so far escaped. One flew into a florist's shop. My friend Mr. Lawford has taken three hovering over flowers at dusk at Hitchin.—Arthur Cottam, St. John's Road, Watford: *October 16th*, 1875.

An insect incendiary.—A large handsome Sphinx moth, generally brown, sometimes grey, called the "Iriano" *(Chærocampa Erotus*, Cramer), is common in the Hervey Islands. The head is brown, and white beneath; the antennæ white, and hooked at the tip; and the proboscis, exquisitely coiled up, sometimes attains the length of five inches. At dusk, in the warm season, they are very numerous, coming out of their hiding-places and entering the dwellings of the natives, attracted by the light inside.

In ancient times, a certain method of secretly wreaking vengeance upon a foe was, on a dry night, to catch two or three "irianos," and, after carefully unwinding their proboscis, tie on narrow strips of stout native "tapa" (cloth) lighted at one end. This cloth only smoulders, and, like touchwood, never goes out. The affrighted moths would then be set at liberty as near as possible to the dwelling of the intended victim. The "irianos" dragging through the air these strips of smouldering "tapa" would naturally make for the highly-combustible thatch. In a few seconds the house would be in a blaze; but the real offender would be at a safe distance.

To render escape impossible, the doors of the house were sometimes secured with *green* bark when the inmates were snoring. Pandanus-leaf thatch, when half

worn out, is peculiarly ignitable. The excuse given for the *very common* crime of house-burning in heathenism was revenge for the murder of some near relative. —W. Wyatt Gill. (From the "Leisure Hour," 11th September, 1875.)

[This will doubtless remind some of our readers of the belief once prevailing in certain parts of Germany, that, according to the old Insect-fabulists, the stag-beetle carries live coals in its jaws from house to house.—E. C. R.]

Natural History of Xylina rhizolitha.—On the 26th April, 1874, I had the pleasure to receive from Mr. J. E. Fletcher, of Worcester, a few eggs of this species, which were laid on the 21st and 22nd of the month; and the larvæ were hatched on the first two days of May.

At first, and for some time, they continued to feed on the green cuticle of the tender young leaves of oak; but, as they grew, began at length to eat little holes through them.

The egg is small for the size of the moth, and in shape is spherical, but a little flattened; it cannot strictly be called ribbed, but is covered with thirty-five to forty longitudinal rows of pits in such regular order that their sides form both shallow ribs and transverse reticulations; in the centre of the upper surface is a button-like round spot ornamented with a star of nine pairs of short raised lines; the colour at first was almost white, the tinge of yellow being very slight; on the third day, this turned to dull pink, afterwards blotched and streaked with pinkish-brown, at last becoming wholly brown.

The young larva is whitish, with a buff coloured head, until after the first moult, when, by aid of a lens, opaque white dots and hairs could be discerned on it: when not quite three weeks old, the larva is half-an-inch long, of a greenish-white colour, showing distinctly the white raised dots and hairs; in four weeks, it is three-quarters of an inch long, and stout in proportion, of a rather pale bluish-green colour finely freckled with whitish, and having slight indications of dorsal and sub-dorsal lines: by this time it feeds well, eating through the leaves from the edges.

The full-grown larva measures one inch and a quarter in length, or a trifle more when stretched out in walking; it is of uniform stoutness, and cylindrical in figure, the head full and rounded, the hinder extremity also rounded, and but little tapered; all the legs are moderately well developed, and terminated by sharp hooks. The ground colour is a rather transparent pale bluish-green, appearing colder on the back and sides than it really is, from being thickly sprinkled over with minute opaque whitish freckles; these, however, are but sparingly seen on the belly, which is of a rather yellower green; the head is of a more tender green, with a patch of paler freckles on the side of each lobe; on the back of the second segment are four whitish dots; on the rest of the body the opaque whitish dorsal line is finely edged with darker green than the ground, but is so much interrupted as only to appear just at either end of each segment; the sub-dorsal shows similarly as a broken whitish line, and less conspicuous, while the spiracular line is indicated still more faintly, existing as an interrupted series of larger whitish freckles than those which besprinkle the skin; the wart-like tubercular dots are opaque whitish, each having round the base a narrow unfreckled ring of the semi-transparent green ground colour, and each bearing a fine whitish hair; the spiracles white, delicately outlined with black; the terminal hooks of the legs whity-brown.

By June 3rd, they had attained their greatest dimensions, and by the 7th had ceased to feed, and were become irritable, some having lost all their white markings and turned wholly green like the colour of the oak leaves, and by the evening they had retired into some light soil supplied to them, and where they spun up in cocoons,—and the moths appeared from September 28th to October 7th.

I found the coccons were about three inches below the surface of the soil, and they were composed chiefly of fibrous particles spun together, and smoothly lined with pale grey silk. The pupa itself is nearly five-eighths of an inch long, and stout in proportion, being a quarter of an inch in diameter; the head and thorax rounded, the wing-covers long, the tip of the abdomen rather bluntly rounded off, having at the end a small rough knob furnished with two small spikes curving a little outwards towards their extremities; it is of a mahogany-brown colour, and very glossy.—WILLIAM BUCKLER, Emsworth: *September 30th*, 1875.

Larva of Catoptria aspidiscana.—On the 9th September, I went to Grange-over-Sands to look for the larvæ of *Scopula terrealis* on the golden-rod; having found nine larvæ about full-fed, it occurred to me that my time might be better spent in trying once more to find the larva of *C. aspidiscana* on the spot where I captured so many of the moths last May; well, I had the good luck to find a larva, which had drawn the flowers of the golden-rod together, in a slight web; though it is quite different from any *Tortrix* larva that I know, I feel quite confident it can be nothing else than *aspidiscana*, as there were only a few square yards where the perfect insect occurred. I casually met Mr. C. S. Gregson on the road-side *en route* for Witherslack, and he took a description and sketch of the larva as we sat on a stone.—J. B. HODGKINSON, 15, Spring Bank, Preston: *September 30th*, 1875.

THE LEEDS NATURALISTS' FIELD CLUB, AND SCIENTIFIC ASSOCIATION.—189th Meeting: *September 15th*, 1875.—Mr. HENRY POCKLINGTON, F.R.M.S., President, in the Chair.

Mr. James Abbott reported the capture on the 5th September of *Colias Edusa*, near Adel Dam (six miles north of Leeds), by himself. Other members reported that the same species was taken in the vicinity of Kirkstall Road, Leeds, and also a specimen of *Vanessa Antiopa* in the same neighbourhood, about the beginning of September, both being now in the possession of Mr. C. W. Liversedge.—W. D. R.

Review.

Mr. Herman Strecker, of Reading, Pennsylvania, is publishing a book which he calls "Lepidoptera, Rhopaloceres and Heteroceres."

The plates are all drawn by himself, after a hard day's work, and could only be done under such circumstances by an entomologist whose heart and soul are in his work. The book is published periodically in parts (6 parts appeared in 1873), containing one plate each with descriptions, the plates crowded with well-drawn, though sometimes rather coarse, figures, and well coloured, all for half-a-dollar. Twelve parts are published, in which butterflies and moths succeed each other alternately. Two plates of the large *Saturniæ*, which are evidently the author's pets, are equal to any that have been drawn by others. Plate 10, in which are figured the "North American species of the genus *Lycæna*," is a marvel, and has never been surpassed in characteristic drawing and faithful colouring. It contains 47 figures. [W. C. H.]

NOTES ON SOME BRITISH *DOLICHOPODIDÆ*, WITH DESCRIPTIONS OF NEW SPECIES.

BY G. H. VERRALL.

(continued from Page 36.)

Since my commencement of this paper, I have captured several species of *Dolichopus* and *Gymnopternus* which require noticing, and I have therefore recommenced with those genera.

DOLICHOPUS URBANUS, Meig.—Abundant at Upware, in the Cambridgeshire Fens, last July.

D. PUNCTICORNIS, Zett.—When I described *D. mediicornis* (p. 32) that was the only species of the group with which I was acquainted; since then I have caught a species which I believe to be Zetterstedt's *D. puncticornis*. Its principal characters are included in the following diagnosis:

D. PUNCTICORNIS, Zett. Dipt. Skan., ii, p. 536.

♂ ♀. *Viridis, facie flavido-ochraceâ; antennis mediocribus, articulo primo subtus ad apicem obscure ochraceo; fronte viridi, oculorum ciliis inferioribus flavis; abdominis incisuris nigris; pedibus flavis, coxis posterioribus cinereis, tarsis nigris, anteriorum articulis basalibus flavidis apice fusco-nigris, tibiarum posticarum apice fere ad tertiam partem determinate nigro, sub-incrassato; alis sub-hyalinis, venâ discoidali leniter flexuosâ mox ante apicem alæ excurrente.*

♂. *Facie flavido-ochraceâ sub-angustâ, pedibus simplicibus, sed tibiarum anticarum apice pilum sub-elongatum ferente, hypopygii mediocris lamellis ovatis, minoribus, sordide albidis, apice et superne nigro-marginatis; costâ ubi vena sub-costalis excipit longé incrassatâ.*

♀. *Facie ex-albidâ, antennis brevioribus, tibiarum posticarum apice ad quintam partem nigro.*

From *D. mediicornis* this species may be easily distinguished by its ochraceous and much narrower face, by the basal joint of the antennæ being only somewhat ochraceous at the tip of the first joint beneath—"articulo basali subtus ad apicem puncto parvo luteo ægre "observando" (Zett., *l.c.*), the antennæ are also slightly shorter, and the third joint less rounded at the tip. The front coxæ bear more numerous small bristles (the front coxæ of *D. mediicornis* being somewhat denuded), the front tibiæ bear a small thin bristle inside at the tip, which is rather inconspicuous, the middle tarsi are paler, having the two basal joints pale with dark tips, the hind tibiæ have nearly the apical third abruptly and conspicuously shining black, slightly dilated, and with a peculiar short groove at the tip outside; the lamellæ of the

hypopygium seem similar, but perhaps more jagged at the tip; the wings are more pellucid, the veins being less infuscated; the discoidal with a slighter flexure, ending slightly before the tip of the wing; the stigmatical swelling is very distinct, and extends for some distance.

The female may be distinguished from *D. mediicornis* ♀ by the darker antennæ, paler base of anterior tarsi, more darkened tip of hind tibiæ, and by the much narrower epistoma.

The only points in Zetterstedt's description which cause the slightest doubt as to the species are the size, which he calls as much as in *D. trivialis*, while my specimens are distinctly smaller; and a remark which he makes under his description of *D. consobrinus* (D. S., xiv, p. 5050) = *maculicornis*, Ver., concerning the flexure of the discoidal vein, which he calls "sub-geniculato," while my specimens are almost "leniter flexo." *D. punctícornis* has hitherto only been recorded rarely from South Sweden by Zetterstedt, and "in Germany "up to the Alps" by Loew. I found it tolerably abundant at Upware in July this year.

D. MEDIICORNIS, Ver.—I caught two females of this species at Fawley on June 21st; the darkened tips of the middle tibiæ seem to be a good distinctive character. The front coxæ of the male are somewhat denuded.

D. LINEARIS, Mg.—I caught two males of this rare species at Upware in July this year.

D. STRIGIPES, *sp. n.*

♀. *Æneus, sub-nitidus, facie angustâ candidissimâ, fronte cæruleo, oculorum ciliis inferioribus albidis, antennis brevibus luteis apice nigro-fusca, pedibus sordide luteis, coxis anticis basi, posterioribus totis cinereis, trochanteribus luteis, tarsis nigro fuscis, basi obscure luteis; squamis pallide-ciliatis; alis sub-hyalinis, venâ discoidali lenissime flexuosâ, fere in apicem alæ excurrente.* *Long.* 2 *lin.*

♂. *Pedibus sordide luteis, femoribus præsertim posticis intus strigâ longitudinali fuscâ, tarsorum anticorum articulis subtus extremo apice exalbidis; hypopygii lamellis flavidis, immarginatis, pallide ciliatis, apice obscuris, ciliis nigris, subtus (latere a ventre remoto) stylo longo apice obscuro, pilis longis nigris ad apicem duobus altero in medio gerente, instructis. Costa ubi vena sub-costalis excipit vix incrassata.*

It is difficult to locate this new species in the genus, as I can scarcely say to what species it is allied; taking the groups into which the genus is commonly broken up, it evidently belongs to those species with yellow femora, cilia of the lower orbit pale, antennæ chiefly yel-

lowish, legs simple, antennæ short, discoidal vein only slightly bent, middle tarsi not silvery at the tip, wings without any dark blotch, and hind femora not (or scarcely) bearded. This leaves *D. simplex*, Meig., *linearis*, Meig., *agilis*, Meig., *modestus*, Wahlb., and perhaps *parvicaudatus*, *inconspicuus*, and *exiguus*, of Zetterstedt. From all these it is easily distinguished by its yellow fringed alulæ (one specimen has two or three black hairs on each alula), and by the peculiarly furcate lamellæ of the hypopygium, which bear a long narrow fork on their under-side (*i. e.*, the side away from the belly, when the hypopygium is in its usual incurved state); this fork begins a little before the middle of the lamella, and runs parallel to it, extending to about the same distance, it bears two long black hairs at or near its tip, and one or two at about half its length; the other part of the lamella is somewhat triangular, running to a sharp, jagged, blackish point. The thorax is æneous, with two bluish longitudinal lines and a bluish scutellum; the antennæ are short for a *Dolichopus*, luteous, with the greater part of the third joint blackish, and with the upper side a little darkened; the face is narrow, and silvery-white; the frons is shining blue (as in some species of *Xiphandrium*); the legs are darkened by the abundant small bristles, the front coxæ are luteous, glossed with silver in front, denuded outside, but bristly inside and in front, their base is all greyish, the hind coxæ are blackish-grey, all the trochanters being luteous; the femora, especially the hind pair, bear a dark streak nearly all along their inner side, and about the darkened part of the hind pair the bristles sometimes almost approach a beard in appearance, the hind femora are faintly darkened at the tip, bearing only one spine behind; the tibiæ all bear long bristles down their outside, the hind pair are altogether darkened, but not more so at the tip; the basal joint of the hind tarsi bears two long bristles above, and the front tarsi seem slightly compressed, having the extreme tips of the joints whitish beneath and faintly dilated, giving the idea of a ♂ *Tachytrechus;* the wings are almost hyaline, the discoidal vein being only very slightly bent (I know no *Dolichopus* having it so slightly bent), the stigma is slight and inconspicuous.

The female I did not succeed in capturing, or I have failed to distinguish it from that of *D. sabinus;* it should differ by its larger size, paler wings, &c. I caught five males at Fawley in Hampshire on June 21st this year.

Gymnopternus gracilis, Stan.—This beautiful golden-green species abounded at Upware last July.

G. CHRYZOZYGOS, W.—This well-known European species was, I think, the commonest of the *Dolichopodidæ* in the Cambridgeshire Fens last July; scores might be seen in every little roadside ditch. The pretty ringed black and white front tarsi, the yellow antennæ and face, and the dark hind tibiæ, easily distinguish it. The great abundance of this species (never previously recorded as British), and of *G. gracilis*, only known to Haliday from specimens in Curtis's collection labelled Thetford in Norfolk, induces me to think that nobody has ever previously collected *Diptera* in the Fens.

G. ASSIMILIS, Stæg.—This little species occurred tolerably freely in a marshy spot in an old quarry near Upware.

TACHYTRECHUS NOTATUS, Stan.—I fancy some mistake has occurred in the 'Insecta Britannica' with regard to the localities of the *Tachytrechi*. *T. notatus*, which is there apparently considered the commonest, I have captured at Aberdeen, Braemar, and Fawley.

T. CONSOBRINUS, Wlk.—This is recorded as only occurring in Mr. Haliday's collection from "Moory uplands of Wicklow;" I have, however, caught it in abundance on the muddy sides of ponds near Lyndhurst and Fawley, and also met with it one day at Braemar. The third British species, *T. insignis*, Stan., I have not yet met with, while *T. ammobates*, not having yet been found anywhere in Britain, is better omitted from our lists.

ORTHOCHILE NIGROCÆRULEA, Ltr.—I have found this rare species at Lee and Leigh.

HYPOPHYLLUS CRETIFER, Wlk.—I caught this species abundantly on stones in a stream close to Penzance, and also near Truro.

ANEPSIUS FLAVIVENTRIS, Mg.—The New Forest seems to be the chief home of this insect, as I have met with it there nearly every summer, and sometimes in abundance; I have also a specimen from Weybridge.

ARGYRA CONFINIS, Zett.—I caught a male of this at the Crystal Palace on June 14th, 1867.

SYNTORMON ZELLERI, Lw.—Two females, caught at Landport, near Lewes, were so named by Loew, but I consider identifications from females only very uncertain.

S. DENTICULATUS, Zett.—I found this species abundant in the

Plashett Park, near Lewes, on August 4th, 1872, and also caught some females this spring, on April 17th, at Blackboys, near the centre of Sussex.

S. PUMILUS, Mg.—I have collected this sparingly in the New Forest, at Upware, and at Aberdeen.

S. TARSATUS, Fall.—This species abounds on Scotston Moor, near Aberdeen, and I saw it near Inverey, Braemar.

S. ŒDICNEMUS, Lw.—When at Rannoch, I caught several specimens of a *Syntormon*, which I thought was undescribed; and, still failing to identify it when I caught both sexes at Braemar, in some notes in the Scottish Naturalist on the *Diptera* at the latter place, I referred to it as being in my collection under the MS. name of *S. crassipes*. A critical examination of it, with a view to description, and a comparison of the descriptions of all the European species, enabled me at last to refer it to the little-known *S. œdicnemus*, Lw. The following are some of its characters:—

Dark green, face narrow, more so from the middle downwards, silvery-white, palpi brown; frons shining green; antennæ long, the third joint outside below being more than three times as long as the other two, for more than half its length it is rather broad (more than one-third its own length), but then rather suddenly narrows to about one-third its previous width, running almost to a point, from which springs the stoutish arista, which is about two-thirds the length of the third joint, the joint itself bears a dense and rather long pale brownish pubescence, and the arista is distinctly, though minutely, pubescent, the first joint has one or two small bristles on its disc above, and the species must therefore belong to the genus *Syntormon*; the cilia of the lower orbit are whitish; the thorax is dark green, the breast-sides greyish, the pleuræ pale-haired, the abdomen is coppery-green, the pubescence near its base pale, the genitalia are rounded, small, and almost concealed, the rounded knob bears pale hairs behind. The legs are yellow, front coxæ yellow with some whitish, and one (or two) black bristles, the hind coxæ dark grey, with the tips and trochanters yellow, the usual few black bristles on the middle pair, and one on the hind pair, the posterior coxæ all with some whitish hairs, front tibiæ with one bristle in front about one-third of the way down, front tarsi pale at the base, middle femora with one bristle in front and one behind near the tip, middle tibiæ sometimes dark at the tip, with three bristles down the outside besides the apical one, and one behind just below the first of those on the outside, one near the third, and one larger one in front near the third, middle tarsi pale on the basal half of the first joint, or sometimes all black, hind femora black at the tip, and hind tibiæ all blackish except the darkish luteous base; the femora bear one bristle behind and about three beneath near the tip, the hind tibiæ gradually dilate from base to tip, they are rather compressed from the sides, considerably bristly, with three large bristles down the outside (besides the apical) and an approach to a ciliation inside, the sides are channeled, the basal joint of the black tarsi is slightly thicker than the

rest, and slightly shorter than the second, beneath about its middle is a solitary rather long bristly-looking hair, thicker in the middle than at its base or tip, generally directed slightly backwards (*i. e.*, towards the base of the tarsus), and with the appearance of simply hanging on, the other bristles are slightly more developed than usual, especially one or two. Wings rather greyish-hyaline, third and fourth veins only slightly approximating.

♀. Face broad, greenish with pale tomentum, frons brilliant purple in the middle, steel-blue at the sides; alulæ black-haired; cilia of the lower orbit with a tendency to form a beard; antennæ short, rounded; belly pale haired; legs paler, front coxæ and base of femora considerably darkened, hind trochanters blackish, hind femora slightly infuscated at the tip; hind tibiæ shorter and thinner than in the male, altogether pale, with rather numerous small bristles, even base of tarsi pale.

S. œdicnemus is therefore easily distinguished from *S. tarsatus* by the absence of the conspicuously dilated tibiæ and tarsi; from *pumilus* by the absence of the bristles at the base of the anterior femora, and by the simple anterior tarsi; from *Zelleri* by the simple front tarsi; from *denticulatus* by the unarmed middle femora; from *Synarthrus monilis* by the simple middle tarsi; and from *pallipes* by its dilated hind tibiæ and different armature of the basal joint of the hind tarsi. The first and only description of *S. œdicnemus* is of the male only, in Loew's Neue Beiträge, vi, p. 15 (1859), and in this are some serious divergences from my description; I fancy, however, they occur in Loew's description from insufficiency of material to describe from. In the first place, he calls the species a *Synarthrus;* he, however, admits himself doubtful on the point, and I am quite sure of the presence of bristles on the upper-side of the first joint of the antennæ in my specimens; he describes all the legs as darker, but scarcely more so than in the darkest of my specimens; and he speaks of the basal joint of the hind tarsi as "subtus setulis duabus divergentibus armatus." At first, I was almost inclined to think the last point conclusive against the identity of the species, but I now think Loew has unduly rated one of the more developed bristles beneath the basal joint of the tarsi; he also slightly differs in describing the bristles on the middle tibiæ, besides other minor differences. He gives no locality for *S. œdicnemus*, but leaves Germany to be understood. I expect it is not rare in Scotland, as each of my visits there has produced it.

Synarthrus monilis, Wlk.—I have caught this little-known species rather freely at Lyndhurst and Ringwood about the end of June. The male has the face white, the front femora dusky above, the front tibiæ with a row of small spines all the way down, the basal joint of the front tarsi pale, dark and bristly at the tip, the other joints short and bristly; middle tarsi with the three basal joints pale,

their tips darkened; hind tarsi all black, the tooth under the basal joint longer than in *S. pallipes*, and more ciliate at its end; the front coxæ are yellow, with the base grey, the arista is slightly dorsal. In the female, the arista is conspicuously dorsal, thus readily distinguishing it from any species which has the second joint of the antennæ protruded into the third; it is also smaller than the male, with all the femora yellow.

XIPHANDRIUM.—Of this genus, *caliginosum* and *appendiculatum* seem very common; these two and *monotrichum* have the frons blue in both sexes, but the black bristles on the coxæ of the last are 0, 1, 1, and in the others 2, 2, 1, thus easily distinguishing the female of *monotrichum*. I have only found *monotrichum* in the New Forest; *brevicorne*, which I have caught at Penzance and Bournemouth, has the frons glossed with white in both sexes, and no black bristles on the coxæ; *fasciatum* and *fissum* I have not seen, but I have found one species new to Britain, in: ————

X. AUCTUM, Loew, of which I caught one male at Lyndhurst on June 23rd, 1873. It is closely allied to *monotrichum*, but the appendages have not the long solitary hair, the joints of the tarsi differ slightly in relative length, it is half as large again, and in my specimen I make out the black bristles on the coxæ 3, 1, 1. It has previously been recorded from Germany and Austria, but is not well recognised.

PORPHYROPS PECTINATUS, Lw.—I captured a male and two females of this near Kew in 1869; it is a well marked species, with a black face and beard, broad frons, front coxæ with black pubescence, bristles behind front femora strong and regular, all black, the basal joint of the front tarsi nearly twice as long as the second joint, the hind femora yellow, with the apical fourth black, the hind tibiæ yellow.

P. CONSOBRINUS, Zett.—In this species, the face is silvery-white, the beard white, the frons rather narrow, the front coxæ with white pubescence, and the bristles on the front femora less strong and regular than in *pectinatus*, and with some pale hairs intermixed behind; the basal joint of the front tarsi is stout and slightly longer than the second, the other three short, the second is a little bent, and thick at the base, with minute erect hairs beneath, the middle femora are thin with fine pale pubescence beneath, the hind femora are all black, the tibiæ dusky, blackish at tip; tarsi much shorter in proportion than in *pectinatus*. The female differs from that of *pectinatus* by the duller yellow, narrower face and frons, and white beard.

(To be continued).

NOTES ON *ANISOTOMIDÆ*, WITH DESCRIPTIONS OF THREE NEW SPECIES (FROM SCOTLAND, SIBERIA, AND ALGIERS).—No. 2.

[*cf.* Ent. Mo. Mag., x, pp. 131—136.]

BY E. C. RYE, F.Z.S.

ANISOTOMA OBLONGA, ♀, Erichson, Ins. Deutschl., iii, p. 53, note; E. C. Rye, Ent. Mo. Mag., vii, p. 180; *id.* Ent. Annual, 1872, p. 65.

Since my record of the two British examples above quoted (one of which was returned to me by Dr. Kraatz as probably this species), I have seen a third specimen, taken in the Manchester district. These three are, as was Erichson's insect, of the female sex; they agree perfectly with each other, and with Erichson's description, with the additional character that the larger punctures on the 1st, 3rd, 5th, and 7th interstices of the elytra are, compared with *A. cinnamomea*, much coarser and more numerous. I have recently examined a fourth specimen, taken at Farnham, Surrey, in September last, by Mr. G. C. Champion, which is of the male sex, and is in my opinion undoubtedly also to be referred to *A. oblonga*, of which the ♂ has not yet been described. This individual, like the three ♀ examined, differs from *cinnamomea* in its smaller size, more elliptical outline, and shorter antennæ, of which the club is lighter; in its thorax having less strongly rounded sides, with more obsolete front- and less obtuse hind-angles; and shorter and proportionally broader elytra, with interstitial punctures as above noted. Erichson's suggestion that the ♂ may be still more easily separable than the ♀ from *cinnamomea* is correct. I add the male characters:—

Mas, tarsis anticis mediisque leviter dilatatis; femoribus posticis apicem versùs fortiter dilatatis, apice subtùs profunde lateque emarginato (angulis obtusis, nec denticulatis); tibiis posticis paulo elongatis incurvatisque, haud incrassatis.

Compared with ♂ *cinnamomea*, the middle tibiæ are not abruptly dilated and incurved in the lower half, but merely a trifle stouter than in the ♀; the hind femora are more dilated towards the apex, but the angles of the apical emargination on the lower side are not only not denticulated, but distinctly rounded off, there being no tooth of any kind to the femur, the lower edge of which is simply irregular in outline; and the hind tibiæ are less elongate, and less thickened and incurvate towards the apex. Erichson says that the middle tibiæ of *cinnamomea* have a sharp tooth on the inner side near the base, but I find no such tooth in my largest and most highly developed example of that species; he probably mistook the toothed and projecting apex of

the trochanter for this. The middle trochanters are not produced or spined in the ♀ *oblonga* now being described; and its hind trochanters are, compared with *cinnamomea* of equal size, much less projecting and sharp.

The entire absence of any apical angular tooth in the hind femora at once distinguishes this species from *A. grandis*, ♂.

Apart from other points, there can here be no question of the species being founded on a minor degree of development, as one character of *A. oblonga*, viz., the dilatation of the hind femora, is actually in excess of the same structure in even larger *cinnamomea*.

ANISOTOMA CURTA, Fairmaire, Faune Ent. Franç., Col., i, p. 315.

This fine species must be added to the British list. I have examined two specimens (which have been corroborated by M. Ch. Brisout), one, a well-developed ♂, from Dr. J. A. Power's collection, taken by the Rev. J. Landy Brown, of Norwich (I presume, near that city), and the other by Mr. Champion at Esher, in September, 1873. The species was originally described from a single ♂ example, taken near Paris; but M. Brisout informs me that it is very common in winter on the sandy coasts of Normandy, and that he has also found it in sandy woods near Paris. Evening sweeping at Deal will probably, therefore, produce more British specimens. It is in the same section as *A. dubia*, equalling the largest examples of that species in size (1¾ lin.), from which it may be distinguished by its rather longer build, the much stronger punctuation of its thorax, the sides of which are more contracted behind, the finer and closer punctuation of the striæ of its elytra, and by the apical joint of its antennæ being distinctly not so wide as the penultimate joint. The ♂ characters are much as in *dubia*, except that the hind tibiæ are not so elongated and are not biarcuate. Fairmaire specifies the very fine punctuation of the interstices of the elytra as a diagnostic character, but there appears no difference between *curta* and *dubia* in this respect.

ANISOTOMA CLAVICORNIS, *sp. n.*

Ovalis, convexa, ferrugineo-testacea, thorace minus crebre punctulato, basi truncato; elytris sat grosse haud profunde punctato-striatis, interstitiis evidenter punctulatis, punctis nonnullis majoribus quoque impressis, postice sat abrupte contractis; tibiis anticis apicem versùs modice dilatatis, haud linearibus; antennis brevibus, thoracis medium haud superantibus, articulo 3° quam 2° paulo longiori, 4°—6° gradatim latioribus, transversis, clava concolori, gradatim latiori, articulis 2 penultimis valde transversis, ultimo dilutiori, magno, præcedenti latitudine æquali, globoso-acuminato.

Habitat Scotiam. *Long.* 1¼ *lin. (Anglic.).*

Mas latet.

A single specimen, in Dr. Sharp's collection; taken in flood-refuse on the banks of the Nith, near Thornhill, Dumfries, October, 1873.

The structure of the antennæ at once distinguishes this species from all others known to me. These organs are very short (suggestive of *Cyrtusa*), gradually widened towards the apex, with the 4th, 5th, and 6th joints unusually small, and the apical joint, though short, as wide as the two preceding (which are very transverse), and forming a capitulum larger than in *A. ovalis*.

The thorax is evenly rounded at the sides, and almost truncate in front, with the anterior angles much rounded off; its surface is delicately and not very closely punctulated; the elytra are coarsely, but not very deeply, punctate-striate, the punctures being not so sharply defined as, but larger than, in *A. dubia*.

ANISOTOMA BAICALENSIS, *sp. n.*

Oblongo-ovalis, modice convexa, ferruginea; antennarum clavâ magnâ, concolori, articulo apicali præcedentibus angustiori; prothorace vix transverso, basi truncato, antrorsum angustato, lateribus haud rotundatis, crebre fortiter punctato; elytris punctato-striatis, interstitiis, vage subtiliterque transversim strigosis; tibiis anticis linearibus.

Long. 1½ *lin. (Anglic.).* *Habitat* Lake Baikal, S. E. Siberia.

Mas latet.

A single ♀ specimen, from Dr. Sharp's collection.

This species may be briefly described as the equivalent to *A. rugosa*, in the section with linear front tibiæ. Apart from the tibial character, it differs from *rugosa* in its rather smaller size and more oblong form, unicolorous antennal club, longer and more strongly punctured thorax, of which the sides are not dilated, but contracted in almost a straight line from the base to the apex (the hinder angles, though obtuse at the point, being almost rectangular), in the punctures of the striæ of its elytra being not quite so closely packed, and the transverse strigosities of the interstices also not so close, the whole surface being more shining.

From *A. hybrida*, it may be at once known by its shorter form, flatter build, lighter colour, more strongly punctured thorax, coarser striæ, &c.

The elytral punctuation in this species is quite unlike that of *A. multipunctata* and *circinipes*, mihi, from Japan; and *A. lateritia*, Mann., from Sitkha, differs at once from it in its transverse thorax, dark club, &c.

ANISOTOMA ALGIRICA, *sp. n.*

Oblongo-ovalis, ferrugineo-testacea; antennarum clavâ tenui, concolori, articulo apicali præcedentibus latitudine æquali; thorace crebre

vix visibiliter punctulato, basi truncato; elytris concinne haud profunde punctato-striatis, interstitiis parce obsoletissimeque punctulatis; tibiis anticis linearibus. *Long.* 1 *lin. (Anglic.).*

Mas, femoribus posticis dilatatis, apice subtus acute denticulato.

Habitat Algeriam.

Somewhat similar to a very small pale specimen of *A. calcarata*, from which the apical joint of its antennæ being equal in width to the penultimate joint, its more slender club, more obsoletely punctured thorax, of which the base is not sinuate, &c., will readily distinguish it. From *A. scita*, which it apparently most resembles, it differs in the shape of the thorax, of which the sides are evenly rounded to and from the middle (instead of being straight to the middle and then contracted in front), its less deeply punctured striæ, and the under angle of the femoral dilatation in the ♂ not being rounded off. This latter character alone will suffice to distinguish it from the smallest and most feebly developed *dubia* or *ovalis*.

Taken by Mr. Rippon in Algiers.

Anisotoma litura, Stephens (*ornata*, Fairm.), var. *maculicollis*.

A specimen from Algiers, in Dr. Sharp's collection, exhibits such extraordinary coloration, that I have given it the above name. It is a very large and broad female, with the dark sutural striæ and lateral streaks more deeply marked than in any Scotch example (I have taken many of this species in the South, but they are always of the pale form), and with wide suffused testaceous lateral margins to the thorax, leaving the centre only broadly black.

In my most highly coloured Scotch specimens, there is, at most, a small testaceous portion at the hinder angles.

The ordinary pale form of *A. litura* is in Dr. Sharp's collection from Bigorre, and *Hydnobius strigosus* from Algiers; *Cyrtusa pauxilla* and *Colenis dentipes* from Reynosa (Spain), the latter also from Bigorre and Albertville; and *Anisotoma pallens* and *Triarthron Mærkeli* from Albertville. Unusually large specimens of *T. Mærkeli* have been taken in the New Forest by Mr. Oliver Janson, and Mr. E. Saunders and Mr. Champion have also found this rare species at Woking. *Anisotoma macropus*, mihi, has again occurred to Mr. Champion at Esher, and at Balcombe, near Tilgate Forest, by sweeping in August under fir-trees; Mr. Marsh has taken *A. brunnea* flying at Mickleham, in September; and *A. lunicollis*, mihi, has come under my notice from different quarters,—viz., one specimen detected by me in Dr. Power's collection, taken many years ago near the Ribble, Lancashire; two old specimens in Mr. G. R. Waterhouse's collection; and another, taken in June last at Forest Hill, by Mr. Marsh.

Parkfield, Putney:
October, 1875.

NOTES ON BUTTERFLIES FROM BOLIVIA, WITH DESCRIPTIONS OF TWO NEW SPECIES.

BY W. C. HEWITSON, F.L.S.

I received, some time since, what he calls a small collection (800 butterflies) from Mr. Buckley, from Bolivia, and as I do not intend to describe the new species (about 30) until the next arrival, with the exception of those now sent, I propose to give a very short summary of its contents. Amongst the new species is a *Morpho* of the *Automedon* group, a new and large *Pieris*, several new *Ithomiæ* and *Erycinidæ*; and, amongst those previously known, and quite as interesting to myself, he sends *Morpho Iphiclus* of Felder, which he was compelled to shoot from the high trees; a fine series, and in great perfection, of the hitherto rare *Junonia jucunda*, the very beautiful *Apatura Lavinia*, and the remarkable *Pandemos Areuta*, figured in the "Genera." He sends, too, an abundance of *Morpho Aurora*, and further examples of *Morpho Godarti*, which were the pride of his former collection.

PAPILIO XYNIAS, *sp. n.*

Upper-side: male, dark brown. Anterior wing with a large pale green bifid square spot on the middle of the inner margin. Posterior wing dentate, with a short linear tail in continuation of the third median nervure: three (sometimes one or two only) oval carmine spots between the inner margin and the third median nervure: a sub-marginal series of four narrow lunular green spots.

Under-side: as above, except that there is a carmine spot at the base of the anterior wing, and three similar spots at the base of the posterior wing, and that there are five carmine spots on the posterior wing, and nearer the outer margin. Exp., $3\frac{9}{10}$ inch.

Near to *Euryleon* and *Xeniades*; nearest probably to *Harmodius*.

PREPONA XENAGORAS, *sp. n.*

Upper-side: male, dark brown. Both wings crossed at the middle by a broad purple band, and by a sub-marginal series of orange spots, two of which, on the posterior wing, are in the form of black ocelli bordered with orange, and placed near the apex and anal angle.

Under-side: rufous-brown. Both wings crossed before the middle by two bands of silvery-white bordered with black. Anterior wing crossed beyond the middle by a zig-zag black band. Posterior wing with the two ocelli of the upper-side, but of a brilliant blue with white pupil, and iris half-orange, half-white: the space between them and the band irrorated with white. Exp., $3\frac{8}{10}$ inch.

Upper-side of *Deiphile*, under-side (with very little difference) of *Gnorima*.

Oatlands, Weybridge: *October*, 1875.

BRITISH *HEMIPTERA*—DESCRIPTION OF *SEHIRUS PICIPES*, A NEW BRITISH SPECIES.

BY EDWARD SAUNDERS, F.L.S.

SEHIRUS PICIPES.

Cydnus picipes, Fall., Mon. Cim., 54, 4; Hem. Suec., i, 20, 5.
Gnathoconus costalis, Fieb., Eur. Hem., 366, 2.

I am glad to be able to add this to our list of British *Hemiptera;* it is closely allied to *S. albomarginatus*, Fab., with which it is not improbably mixed in some collections. Dr. Power, the other evening, shewed me a few specimens found in the neighbourhood of Esher and Weybridge, by himself, which he had put aside as distinct from *S. albomarginatus*, and from one of them I make the following diagnosis:—

Black, shining, deeply and rugosely punctured. Head scarcely notched in front, extreme lateral margin of the elytra to a little below the middle, ochreous-brown; membrane milky-white. Antennæ with the apical joint scarcely longer than the 3rd; legs black, tarsi paler.

Length 2 lin.

Distinct from *S. albomarginatus* by the narrow and darker margin to the elytra, the pale colour of which does not extend on to the corium adjoining, and is only visible on the basal half; also by the much less notched head, the shorter apical joint of the antennæ, and the pale membrane.

2, Spencer Park, Wandsworth:
November 4th, 1875.

[I find that I have this species among some unexamined examples taken many years ago by Mr. Wollaston at Mablethorpe, Lincolnshire.—J. W. D.]

BRITISH *HEMIPTERA*—AN ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

NABIS RUGOSUS.

Cimex rugosus, Lin., F. S., 246, 916 (1761). *Nabis dorsalis*, Duf., Rech., 62, 1, t. 5, fig. 55 (1833). *Nabis brevis*, Scholz, Arb. u. Veränd., 112, 2 (1847); Fieb., Eur. Hem., 160, 3 (1861). *Nabis fuminervis*, Dahlb., Vet. Ak. Handl., 224 (1851). *Nabis rugosus*, Reut., Öfv. Vet. Ak. Förhand., 74, 6 (1872). *Nabis rugosa*, Muls. and Rey, Pun. Fr., iv, 96, 6 (1873).

Pale testaceous. *Head* with a broad, fuscous-black, outwardly bi-dentate vitta extending from the red ocelli to the base of the middle lobe of the face, outwardly

margined by a deep black line; the prominent middle lobe margined by a black line; the sides of the head before and behind the prominent black eyes, broadly fuscous. *Rostrum* testaceous with a black line outside. *Antennæ* testaceous, 1st joint with a fine black line on the inner side, 2nd black at the extreme base, the apex, and the 3rd and 4th joints, wholly fuscous-black.

Pronotum long-trapezoidal, anteriorly annuliform; the middle portion long, convex; the posterior third on its front somewhat depressed, then slightly convex transversely; down the middle throughout is a fuscous vitta which, on the middle portion only, is widened and has a fine yellow line down its centre, the exterior being sharply defined by a fine deep black straight line which begins and ends with a black dot; from the lower end a thin black line curves upwards and outwards, and defines a conspicuous pale spot, and, generally, another similar, but darker, one exterior to the first, thus forming a figure somewhat like ∞ : and sometimes the whole of the middle portion of the disc is also enclosed within a continuous, irregularly angulated, delicate black line: the short anterior annulus has also a rather broad fuscous vitta close to the sides, and the posterior portion a similar vitta (sometimes two) between the middle one and the posterior angles. *Scutellum* black, with a long comma-shaped pale spot on each side of the middle, but leaving the small basal angles black. *Elytra* as long as the abdomen in the ♂, scarcely so long in the ♀; *clavus* more or less infuscated; *corium* long, nerves prominent, pale, margined more or less with fuscous; on the 1st, beyond the middle, a long black spot, another at the posterior junction of the 1st and 2nd nerves, and a third, smaller, on the membrane-suture: *membrane* short, pale, with broad fuscous nerves. *Wings* (in my examples) rudimentary. *Sternum* black in the middle. *Legs* testaceous; thighs, on the sides, with black dots in rows, the first pair, outwardly, having also transverse brown lines; joints of the *tarsi* at the extreme apex, and the claws, black.

Abdomen, above, reddish-fuscous, the connexivum pale, with a basal pale red streak; beneath, clothed with fine whitish pubescence, a middle line and the sides broadly fuscous-black. Length, 3—3¼ lines.

In colour like *N. ferus*, but broader, shorter, elytra not so long, antennæ much longer, &c.

Distinguished from *N. ericetorum* by the pale testaceous colour, the broader form, the conspicuous light nerves of the corium, the slightly longer antennæ, &c., and the different habitat. According to Reuter's figure, there is also a slight difference in the form of the *hamus* of the genitalia of the male.

I have only recently found this species among herbaceous plants at Lee and Darenth Wood, but I have no doubt it is generally distributed. I have never found it among heath, where only *N. ericetorum* plentifully occurs.

In the "British Hemiptera," *N. ericetorum*, Scholz, was described, following Fieber's suggestion, under the prior name *N. dorsalis*, Duf.; but, as it has since appeared that there are two distinct species indicated by these names, and *dorsalis* (which Reuter, *l. c.*, has given valid reasons for considering to be *Cimex rugosus*, Lin.) is British, it is necessary now to describe it.

Lee: 1*st November*, 1875.

Notes on insects at St. Helena.—The following brief notes of the entomological results of six weeks' stay in this island may not be uninteresting. Mrs. Wollaston and I are staying at Plantation House, some 1800 feet above the sea, and commanding, within an easy ride of an hour and a half (on the back of either a pony or donkey), the uncultivated district, still covered with cabbage-trees and tree-ferns, of the great central ridge. This is so generally covered in with cloud, that even now it is almost impossible to reach it more than about two days in each week.

Our object being exclusively to investigate the Fauna of St. Helena, we shall probably remain on until at least the middle of December, and then make for Madeira. As might be expected in such an isolated spot (some 1,200 miles from the nearest continental land), species are decidedly scarce, and the gaps prodigious,—whole families (almost universal) being totally unrepresented. Yet the fauna is precisely what I felt sure it would be (*i. e.*, so far as the *Coleoptera* are concerned); variations of some half-dozen forms occurring, which are so monstrously developed that we never ride up to the cabbage-tree ridge without getting new ones. This (from the few eccentric species which had been sent home from time to time) I always anticipated would be the case,—*Microxylobius* (of the *Cossonidæ*) reigning supreme, followed by *Notioxenus* and *Homœodera* of the *Anthribidæ*, and *Nesiotes* of the *Synaptonychidæ*; all of them *Rhynchophora*. A few anomalous little creatures of other groups have of course turned up, but they are quite the exception,—such as a diminutive *Trechus* scarcely larger than a *Meligethes*, two or three minute *Bembidia*; and in *Hymenoptera* a small creature, apparently unable to fly, which has its wings of a velvety consistency, the hinder pair being reduced to narrow strips, or filaments, whilst the front ones are not only large and carried erect over its thorax, but pedunculated at the base, and formed towards the apex into complete *spoons* (deep, regular, and concave). It is altogether a wonderful insect, and resides in the wet moss which pads the faces (at a high altitude) of perpendicular rocks. A few curious looking bugs have also come to light in the central districts, including a beautiful genus allied to *Salda*. The *Lepidoptera* are the special department of Mrs. Wollaston, and I do not attempt to touch them; but I think she has obtained at least 60 species already,—chiefly *Pyralidæ* and *Tineina*. Of butterflies there seem to be only four species,—the common *Cynthia cardui*, *L. bœtica*, a big *Danais* (found also at the Canaries and Cape Verde), and a large black and white tropical form. At any rate, in *both* orders we have exceeded (in point of number) Mr. Melliss' list, which is at least hopeful, his lately published catalogue being the result of many years' collecting in the island. My number of species hitherto does not exceed about 130, and I am doubtful whether I shall bring it up above 200 before we go.—T. V. Wollaston, Plantation House, St. Helena: *October 19th*, 1875.

On the capture of a South American wasp (Polistes bipustulatus, Saussure) near Liverpool.—During an excursion of the Liverpool Naturalists' Field Club last summer, a specimen of *Polistes bipustulatus* was found by Mr. W. H. Mountfield about eight miles from Liverpool, near Ince Blundell, a locality about a mile from the nearest shore, and quite away from all houses and docks. The insect was caught in a dry sandy situation, and, although the species is undoubtedly an importation, the question arises as to the possibility of the specimen caught being one of a brood developed in this country. The nests of *Polistes* are exposed, consisting of a single comb,

which is circular, varying in diameter, in the different species, from about four to seven or eight inches; they are attached to all kinds of substances,—branches of trees, posts and rails, window-frames and cornices of rooms, and frequently they are found attached to stones: in fact, their situations are innumerable. An allied species to *P. bipustulatus* was taken at Penzance by the late Miss Carne, who observed some numbers of it during two seasons; but she ascertained that they came from Brazil, on ships laden with raw hides. The same species was also found in London, in docks and dock warehouses; and specimens were sent to me taken at Liverpool in a wool warehouse. Accounts of these captures appeared in the Entomologist's Annual for 1868 and 1869.—Fredk. Smith, British Museum: *October*, 1875.

Note on the habitat of Typhlocyba aurovittata.—When I described this species (p. 76 *ante*), I was unable to say precisely from what tree or plant I had taken it, but, recently, at the same place where I made the original capture, I have traced the species to the oak, having beaten examples from oak-bushes growing in the hedges, and from them only. Fieber gives "Anglia" as the country from which he had the species, and I believe it was one of my original examples he had before him when he proposed the name "*aurovittata*."—J. W. Douglas, Lee: 22*nd Oct.*, 1875.

Sphinx convolvuli and Dianthœcia albimacula at Folkestone.—*Sphinx convolvuli* has been unusually abundant this year. One man brought me five in a box, that he had just caught *in his hand* over a bed of petunias during a shower of rain. He said he had caught ten in all.

Dianthœcia albimacula too has been abundant; I am surprised not to have seen notices of its capture. I fear it has got into the hands of the dealers. But a large number have been caught, I believe, at Folkestone. My friend Mr. Blackall took six in half-an-hour one evening. But we only discovered the locality when it was getting too late. Nightly visits had been evidently paid for a long time past to the spot.—Henry Ullyett, Folkestone: *November*, 1875.

On the habits, &c., of the larvæ of Eupithecia togata.—On September 6th, Sir Thomas Moncreiffe, Mr. Wm. Herd, and I started for a locality where *Eup. togata* has occurred tolerably freely, with a resolute determination not to return home till we had found the larva and made ourselves thoroughly acquainted with its food-plant and habits.

The perfect insect always occurs in the neighbourhood of spruce-fir trees; to the spruces therefore we directed our attention. Long did we carefully scan the twigs. Diligently did we beat the boughs, but all in vain. "Bother the larvæ," we all exclaimed. We stood together racking our brains and staring up into the tall spruces. "I've got it," we almost simultaneously cried out, "they are in the cones." "I'll go up," said Mr. Herd, and up he went, and soon began to pelt us with cones; amongst them were several from which a copious quantity of fresh frass was protruding. These were quickly laid open with a sharp knife, and very soon a lively fat pinkish looking larva, very like a miniature *Cossus ligniperda*, was disclosed to view, which I at once recognized to be *Eup. togata* from a beautiful drawing which Mr. Buckler executed for me several years ago, from a larva reared on young shoots of spruce, from eggs laid by a captured female. A further search revealed sundry other larvæ; in one fresh fallen cone we found no less than seven of various sizes: they feed between the scales of the cone upon the ripe seed at the base.

The larva is of a uniform dull pink, more or less clouded and spotted with black on the dorsal segments. Some of the younger and smaller specimens were very dingy; the head is black, with two small white dots at the base; on the neck are two conspicuous black dots. When full-fed, it quits the cone and spins a slight cocoon on the surface of the earth. The pupa is bright red and resembles that of *Eup. subfulvata*. Another somewhat similarly coloured larva, apparently a *Tortrix*, feeds inside the cones, in company with that of *Eup. togata*. Sir Thos. Moncreiffe believes it to be *A. strobilella*.—H. Harpur Crewe, Drayton-Beauchamp Rectory, Tring: *November 1st*, 1875.

On Ebulea stachydalis, a Pyralis new to Britain.—In the third week in June last, while collecting at a short distance from this town, I disturbed, from a dense mass of bushes and herbage, a *Pyralis* which appeared to be a very dark variety of *Ebulea sambucalis*, and was accordingly boxed. Being much occupied at the time with local *Tortrices*, I paid little attention to this specimen, and it was not until it had been removed from the setting-board and compared with continental types that I recognised it as *Ebulea stachydalis*—a species not previously recorded in this country.

On further search I found that a *Stachys (S. arvensis*, I think) was growing luxuriantly on the spot, and from this another specimen was disturbed, which, after settling a moment (out of "aggravation" of course), disappeared in a thick mass of brambles, and was no more seen; nor could I by any amount of subsequent labour procure a second specimen.

My friend Mr. Stainton has favored me with an extract from the Stettin. ent. Zeitung, by the late Herr Metzner of Frankfort-on-the-Oder, which not only points out the distinctive characters of the species, but also gives its history, and is therefore interesting.

Stett. e. Z., 1846, p. 242, *Botys stachydalis*, Zincken:—"Treitschke mentions, "in the 7th volume of his work, p. 85, an undescribed *Botys stachydalis*, coming "near to *sambucalis*, of which he reserves the description for the Supplement. This "intention was not, however, carried out, since, in the 10th volume of his work, he "is quite silent respecting *stachydalis*. I find that this species has already been "mentioned, which probably led Treitschke to hope that he should learn to know it. "It is in Charpentier's remarks on the Micro-Lepidoptera of the Wiener Verzeichniss, "p. 15, where Zincken says, in note 23, 'with *stachydalis*, mihi, a species of *Pyralis* "'discovered by me on *Stachys sylvatica*.'

"But since then this *stachydalis* has been lost sight of; and in the printed "catalogue of Treitschke's collection it is not mentioned, which proves that he had "not learned to know it. But we find in this catalogue a *Parietarialis*, Mann, "introduced immediately after *sambucalis*. This species, probably taken by Mann "of Vienna on *Parietaria officinalis*, if not found as a larva, was largely distributed "by the industrious discoverer under this somewhat lengthy name. It had also "reached Duponchel, in whose latest work, 'Catalogue des Lépidoptères d'Europe,' "Paris, 1846, it is introduced in the genus *Botys* at p. 207, but as *Parietarialis*, "Parreyss, and as a variety of *sambucalis*. * * * * This *Parietarialis* is just that "*stachydalis*, and according to all law and right the older name must be adopted,

"hence I communicate here what I know about it, and give the specific characters in "order to call the attention of collectors to a species which is probably not scarce "throughout Germany.

"*Stachydalis* (or *Parietarialis*, Mann, under which name I have received speci- "mens of it from Vienna) is described and figured by Zincken in the little known "Ahren's Fauna, Heft. 4, No. 18. The figure is very bad, with the wings too broad, "the hind wings round, and the spots have become brown. In order not to copy "the Latin description, which is probably intelligible to few, I give the translation:—

"Wings bent downwards, brown, the anterior with two, the posterior with "three, yellowish spots. Brunswick (Museum Zincken). Very closely allied to "*sambucalis*, W. V., which it resembles, but it is smaller, and differs in the "anterior wings having two, and not three, spots. The sixteen-footed larva is thick, "wrinkled, naked, rather clear white; it occurs near 'Brunswick in united leaves of "*Stachys sylvatica*.'

"Zincken here lays proper stress on the principal differences, on which, however, "something has to be remarked. *Stachydalis* is only generally smaller, exceptional "specimens of *sambucalis* are quite as small, consequently there remains, as a certain "and constant character, only the number of spots. For instance, *sambucalis* has a "large, yellowish, quadrangular spot on the disc, and a still larger rounded spot in "the elbow of the second transverse line; besides, there is, as a third spot, a pale "yellowish triangle which lies beneath the quadrangular spot between the two first "branches of the median nervure, and forms a sort of connecting link between the "two large spots. When the central portion of the wing is richly dusted with "yellow towards the inner margin this small triangle is less distinctly apparent, but "it is *always present*, and on the under-side it participates in the violet gloss of the "other spots, which gloss never extends further towards the inner margin. This "small triangle is entirely wanting in *stachydalis* on both sides, and thereby the "two species can always be recognised. A further difference is presented by the "greater breadth and shortness of the wings in *stachydalis*; besides, this has the "spots smaller, brighter yellow, less yellow dusting, and therefore a darker appear- "ance. It also appears to be a constant character that *stachydalis*, on the inner "edge of the quadrangular spot, has a yellow dot separated from it by a narrow "dark brown stripe. *Sambucalis*, it is true, also shows a small yellow spot towards "the base, but it lies within the first transverse line (whereas in *stachydalis* it is "beyond it), and is thus far removed from the quadrangular spot. Finally, *sambu-* "*calis* has, in the ♂, very fine dentations on the under-side of the antennæ, which "are distinctly visible with a lens; these are wanting in the ♂ *stachydalis*, "and are replaced by microscopic, but distinct, pubescence."

I have introduced this long extract because it goes very carefully into the distinctive characters. It, however, omits one which is mentioned by Heinemann in his description—"the more strongly waved hind margin, and more acute apex of anterior wings in *stachydalis*." All these characters I find to agree, except that the spots in my specimen are very pale; and there is still an omission:—in *stachydalis* the row of yellow dots which lies outside the second transverse line is not dilated below the costa as in *sambucalis*, nor is the line itself so deeply bent.

I may add that I have already discovered a specimen of *stachydalis* among some old British *sambucalis*, and feel little doubt it exists mixed with that species in other collections.—CHAS. G. BARRETT, Pembroke: *8th November*, 1875.

On the larva and habits of Paraponyx stratiotalis.—It gives me great pleasure to acknowledge with sincere thanks my obligation to Mr. W. C. Boyd, of Cheshunt, for all the trouble he has so kindly taken to furnish me with examples of this curious subaqueous larva, until I have been able to observe its habits with some degree of completeness.

On June 10th, 1872, he sent me, in wet moss in a tin box, by post, two cocoons and three larvæ; one of the latter, having died, was submitted to Dr. T. A. Chapman, who examined its structure under the microscope, and very kindly took considerable trouble in making pen and ink sketches of several portions of it—to my great assistance in making it out.

The other examples I figured and described, but was baffled at that time in fully observing their habits by (as I believe) the carnivorous propensities of sundry leeches and other interlopers, that gained admittance among the leaves of the *Anacharis alsinastrum*—one of the plants on which *stratiotalis* feeds; for by the end of the year not a trace of cocoons or larvæ could be found.

However, on July 21st, 1874, Mr. Boyd was able to send me, by railway, several cocoons and larvæ, as well as a good supply of food, and with these, having taken more pains, I have been more successful,—carefully removing from their habitat all creatures that could do them harm, and always straining the water supplied from time to time to make good what had been lost by evaporation.

Before giving a detailed account of my observations, I had better describe the larva, because the peculiarities of its structure will account for the most curious of its habits.

The larva when full-grown is from six-eighths to seven-eighths inch in length, of cylindrical figure, though tapered a little on the four anterior segments, the head being rather the smallest, and the two hinder segments also a little tapered; the anterior and anal legs very well developed, the ventral ones moderately so; the skin is soft and smooth, and furnished with eight rows of flexible branchiæ* composed of tufts of six or less slender fleshy filaments of unequal length tapering to rather fine points, and all radiating from a short thick basal stem, and occupying the positions of the usual warts or spots seen so distinctly in an *Agrotis* larva, otherwise, to the unassisted eye, they remind one of the spines of some butterfly larvæ. In colour the semi-translucent body is of a very pale tint of olive-ochreous or of whitish-ochreous, generally more or less tinged with olive, and marked with a few small purplish freckles; the alimentary canal is conspicuous, showing through the skin as a broad dorsal stripe of dark grey, or brownish or greenish-grey; the whitish tracheæ can also be partially seen through the skin on each side; the pale brown head has the lobes delicately outlined with dark brown, the mouth and ocelli blackish-brown; the branchiæ dirty whitish-grey; the spiracles exceedingly small and black, each being situated on the flat centre of a swelling eminence; a small wart-like tubercle near the base of the ventral legs bears a single hair-like filament.

On putting the second supply of the larvæ, &c., with the weed, into a glass globe

* That these are rightly so called, and that they are connected with the respiratory system, I had a good proof while changing the water of the two first larvæ I received: when I put them for a minute or two into a glass of spring water just drawn from a filter, immediately there appeared a small silvery air bubble at the extreme point of each filament, but when the larvæ were returned to the fresh river water these air bubbles soon disappeared. I did not try to make them appear again, as I feared the experiment might be detrimental to the health of the larvæ. —W. B.

of water, I found amongst them a cylindrical case formed with pieces of *Butomus umbellatus*, about an inch and a half long, and half-an-inch in diameter, no doubt originally constructed by a very different aquatic larva, though now tenanted by a larva of *stratiotalis*; this, on looking at it three hours afterwards, at night, I saw had been deserted; the next morning I found it again in possession of one of the larvæ, when, for better observation, I transferred it with the larva to a wide-mouthed bottle of water and a spray or two of the food-plant; I also placed four others of the larvæ, separately, with pieces of the weed, into as many similar bottles of water: in course of the same evening I saw that the individual in the case had contrived to sink its abode to the bottom of the bottle, and had fixed it there in a nearly perpendicular position, by spinning a quantity of silken threads to the end of a stem of the food-plant, already made fast by similar means to the side and bottom of the bottle; this case had previously been floating on the surface of the water, both when empty and when a larva was inside. Another larva that had its bottle supplied with a longer spray bent double, began at once to spin a quantity of silk to the bent part of the stem, and to the side and bottom of the bottle, thus forming a kind of silken tent open at one side, and through this opening I was able to observe all its movements from time to time. Another spun for itself a sloping wall or screen of silk, from the side to the middle of the bottom of the bottle, enclosing two pieces of the water-weed fixed within it; this was also open at one end. Another spun two stems to the side of its bottle in nearly a vertical position, about half-an-inch apart, and spread its web from one stem to the other, and upon the glass of the sides of the bottle, leaving an opening below half-an-inch from the bottom of the water, the top of the web being about the same distance from the top of the water; this larva continued to live in a position perpendicular to the bottom of the bottle, and eventually drew the stems of its food closer together, and spun itself up in a cocoon between them on July 25th.

The fifth larva, which was smaller than the others, spun a squarish web for itself in the midst of three pieces of the water-weed, and, when other pieces were supplied, spun a fresh web amongst them.

I soon found that these larvæ in the bottles, as well as those in the globe, preferred to live at some depth in the water, not one of them choosing to reside at the surface; each larva in the globe spun a web for itself, either a kind of open tent or a short gallery, and the form varied with its surrounding circumstances, but it was invariably fastened to the food-plant, and occasionally to the glass also: one larva, I noticed, often cut off leaves from the stem of its food, and then attached them to the silken wall of its dwelling.

I now come to mention the peculiar habit of this larva which I watched with extreme interest during many months.

Night and day, at intervals varying from one to three minutes apart, the larva, holding to its web by the anal legs, rapidly undulates its body upwards and forwards with considerable vigour and energy, while the three hinder segments appear motionless; this intermittent movement lasts about twenty-one seconds at a time, and is followed by a period of rest—longer, that is for two or three minutes—when the larva is quiet, and shorter when it is feeding, at such times not exceeding one minute. That this energetic undulation is connected with the respiration of the larva is evident

from the fact that the branchial filaments are then all in strong action, for, instead of radiating as they do in repose, they become depressed a little, and point forwards in the direction of the head.

As to their method of feeding, I noticed that the smaller larvæ ate only the green cuticle from the leaves, thus bleaching them; but the larger ones ate completely through the leaves, cutting out circular pieces: when frass was ejected, the dark alimentary canal was seen suddenly to lose its contents as far back as the beginning of the third segment from the anal extremity (that is the eleventh segment counting in the usual way), and to discharge them with such great velocity that the frass was carried about an inch outside the opening of the silken residence, the larva having first moved backwards to the opening, and afterwards retiring within to its former place. I found in each of the above-mentioned bottles, every morning, at the same distance from the web, an accumulation of rejectamenta consisting of small ovate particles of olive-greenish vegetable debris, little changed in colour from that of the plant: in one instance, after cleaning out this accumulation, and supplying fresh water with no apparent disturbance to the larva, I found, at the end of twenty-four hours, it had expelled twenty-six pellets of frass.

On September 10th, 1874, I had the great satisfaction of breeding one moth from a larva that had spun up in a bottle; but I got out no more, for, although I had then and previously so many other pupæ, yet they, like most of the larvæ, seemed standing over for another season; indeed, two larvæ were not much more than half-grown by the 5th October; up to that date, all seemed going on very well, but, as winter approached, they and the others became somewhat torpid, ceased to feed, and carried on their peculiar motions in a slower manner, at longer intervals, and within webs of more contracted space.

By January, 1875, the *Anacharis* had lost nearly every leaf, and the stems all vitality, and a rapid decay ensued, which destroyed all the contents both of the globe and bottles by the end of the month; and so I was not able to find out whether a second year would have brought out the rest of my stock in the perfect state.

The general figure of the cocoon of silk in which the pupa of *stratiotalis* is spun up, is a long oval about five-eighths inch in length by three-sixteenths in width, and gradually widening to the upper end, which is not rounded, but sloped off from above at an obtuse end, thus presenting a somewhat truncated appearance; it is attached for its whole length, by the back, to a piece of the stem of the food-plant, which affords a strong support, besides being further moored by strong outlying threads from the upper part to the stem; it is but a little tapered towards the hinder end, which is generally involved amongst some leaves; I saw some cocoons fixed to two stems; the colour of the silk is either pale pinkish or flesh colour, inclining to olive anteriorly, and darker greyish-olive behind; its surface very shining, but it is very opaque, and the pupa cannot be seen through it. The pupa itself is half-an-inch in length, rather slender in proportion, widest from behind the thorax, from whence the abdomen tapers to the rather blunt tip; the thorax rounds off towards the squarish head; the eyes large and prominent; the wing-, antenna- and leg-cases well developed, the latter extending free from the eighth to as far as the end of the twelfth segment; only three spiracles on either side are distinguishable, viz., on segments six, seven, and eight, but these are large, circular, and projecting considerably like knobs or warts from the side: at first the pupa is unicolorous, of a delicate yellowish-flesh

tint, but, as it approaches maturity, the wings appear a darkish grey-brown, and show the darker outlined central spot; the eyes also become of the same dark colour, the thorax and legs light brown, the abdominal segments whitish-flesh colour transversely barred with light brown; there is also a faint dorsal line of dusky spots, and a light brown spot on either side of each of the three segments before the last; the spiracles are of a light orange-brown, ringed at the base with blackish.—Wm. Buckler, Emsworth: *September 21st*, 1875.

On Xysmatodoma melanella and the case of its larva.—When Mr. Harding's notes on *X. melanella* appeared in 1869 (Vol. vi, pp. 91–93), I must confess I was somewhat startled, for variation of species gives trouble enough, but if any insect were proved to be capable of shewing itself under two such totally different forms, not only species, but well marked genera would have to be abandoned, and we should at last arrive at the result of no species and no genera. I therefore hoped we should have heard something more on the subject, and in the meantime made some investigations myself. Has not Mr. Harding confused the cases of two distinct species, of which the imagos are very different, though the cases are somewhat similar? He describes the cases as "round, slightly curved, and generally green." Now, all the cases from which I have bred *X. melanella*, were slightly curved at the mouth, where the case is circular, but the hinder end is decidedly *three sided*, and the case has, when viewed laterally, a truncated appearance. The colour seems to be *always* green, and when the perfect insect emerges, the pupa skin is left *sticking out*. From these cases I have bred winged specimens of *X. melanella* of both sexes, but nothing else. On the same trees, however, on which these cases were found, there were also cases about the same size, but circular for the *whole* length, and *pointed* at the hinder end. They are not always green, but frequently show circular bands of green and grey, and the pupa skin is always left *inside*. From these latter, I have bred only apterous females of the genus *Solenobia*, and nothing else. I have sent cases of each kind to Mr. Harding, but I believe he still holds to his former opinion, though to myself, the differences noted above are quite conclusive as to the complete separation between the two species.—W. C. Boyd, Cheshunt: *Nov. 1st*, 1875.

[We fear we never laid much stress ourselves on Mr. Harding's supposed discovery of two forms of *Xysmatodoma melanella*; we perfectly recollect, that when first *Elachista poæ* was bred—it was reputed a form of *E. cerusella*,—simply because *simultaneously* eliminated from the *same* plant.—Eds.]

Coleophora fuscocuprella.—On the 15th of this month, the weather looking a little more favourable, I determined to go after *Asychna profugella* at Witherslack, but the rain unfortunately again set in when I was within half-an-hour's walk of the coveted spot, and I was obliged to fall back on Grange-over-Sands, where I had to wait several hours before any train was available. So I turned into the woods among the yew-trees, and by beating them into my umbrella, I filled all the boxes I had with me, putting in some cases two or three specimens in a box. I filled some thirty boxes with *Lyonetia Clerckella*, the brown form being as six to one of the white form. Among the lot were one *Gracilaria phasianipennella*, four *Zelleria insignipennella*, red form and yellow, and one specimen partly red and the remainder canary colour: *Gracilaria elongella* and *Coriscium cuculipennellum* also put in an appearance.

As all my boxes were full, I now turned to hunting for larvæ, and soon had the pleasure of finding some of *Coleophora fuscocuprella*; I had looked for it in vain since 1856, when the late T. H. Allis and I had many a hunt for it at Windermere, but I should remark that Stainton says "case circular," and this slightly misled me, as the cases are turned as abruptly as a fish hook, even when very young. I found six of various sizes, some appearing quite full-grown. I may add that I found them only on certain nut-bushes, where I have occasionally met with the perfect insect; I fancy the cases are greater *desiderata* than the insects, judging by catalogues sent to me.—J. B. Hodgkinson, 15, Spring Bank, Preston: *October 20th*, 1875.

Coleophora conyzæ, Zell., a new British species.—It seems strange that so large and conspicuous an insect as *Coleophora conyzæ* should not have been named till 1868. Possibly the insect had often been previously collected, but confounded with other species. The late Von Heinemann, of Brunswick, first met with the larvæ of this insect on *Conyza squarrosa*; afterwards M. Millière found it at Cannes; now Mr. Sydney Webb has met with it near Dover and at Mickleham, so that the species seems to be widely distributed. Mr. Webb observes that "the blotches it makes on its food-plant are very conspicuous," so that he is surprised the species had not been detected before. Mr. Webb has also met with stragglers feeding on *Eupatorium cannabinum*.

The somewhat clumsily-shaped case reminds one strongly of that of the labiate-feeder, *C. auricella*, and it is at a glance distinguished from the smoother and more trim-looking case of the other *Eupatorium*-feeding species, *C. troglodytella*.

Professor Zeller, who describes the species in the Verhandlungen der zoologisch-botanischen Gesellschaft in Wien, 1868, p. 623, observes that it closely resembles *C. virgatella*, for which, when collecting the imago, he had mistaken it, not observing the absence of the tuft at the base of the antennæ. Also that it comes very near to *C. onosmella*, for small specimens of which it might almost be mistaken, but that the following differences might be perceived: 1st—the anterior wings are considerably broader; 2nd—the tuft of the palpi reaches to the end of the terminal joint, or even exceeds it, whereas in *onosmella* it only reaches to half the length of the terminal joint; 3rd—the more slender basal joint of the antennæ: 4th—the greater shortness (or, as the German phrase is, "the more trifling length") of the anterior wings; 5th—the early appearance of the imago (from the 28th May to middle of June); and 6th—the difference of the case of the larva. Schläger bred the insect at Jena, from *Inula hirta*.

On the *Conyza squarrosa*, Mr. Webb observes that the larva feeds on the radical leaves rather voraciously.—H. T. Stainton, Mountsfield, Lewisham, S.E.: *November 6th*, 1875.

Entomological Society of London: *3rd November*, 1875.—Sir S. S. Saunders, C.M.G., President, in the Chair.

As this was the first Meeting in the New Rooms at 11, Chandos Street, Cavendish Square, the President delivered a short Inaugural Address.

M. Oscar Lamarche, of Liége, was elected a Foreign Member.

Mr. W. C. Boyd exhibited mines of *Heliozela sericiella* in oak. The habits of this insect had for long baffled the researches of Micro-Lepidopterists, though it was

evidently attached to oak. Mr. Boyd had confined a number of the insects with a young oak plant, and was rewarded by the discovery of the larva and mine. The latter is in the foot-stalk of the leaf, and this partly accounted for its having hitherto escaped detection.

Mr. McLachlan exhibited a living apterous female of the terrestial Trichopterous insect belonging to the genus *Enoicyla* (probably *E. pusilla*, Burm.), discovered in this country by Mr. Fletcher, of Worcester; and gave some account of its singular habits and structure. The perfect insects (the ♂ being provided with ample wings) emerge in November, and the individual exhibited had been recently bred from cases forwarded by Mr. Fletcher.

Mr. Champion exhibited examples of the following *Coleoptera*, most of which have been previously noticed in this Magazine, viz.:—*Cryptophagus populi*, found in the burrows of *Colletes Daviesiana* near Farnham; *Orchestes semirufus?*, from Woking; *Epuræa neglecta*, from Darenth Wood; and *Psammobius porcicollis*, taken by Mr. J. J. Walker at Whitsand Bay, Cornwall.

Mr. Phipson exhibited a *Catocala nupta* with a multitude of the ordinary insect-infesting *Acari* congregated on a certain spot on one of the anterior-wings, instead of being on the body, as is usual.

The Rev. H. S. Gorham read "Descriptions of a new genus and some new species of *Endomycici*."

Mr. A. G. Butler read a "List of the *Lepidoptera* referable to the genus *Hypsa*, with descriptions of new species."

Mr. E. Saunders read the second part of his "Synopsis of the British Hemiptera-Heteroptera."

Mr. C. O. Waterhouse read "Descriptions of new genera and species of *Heteromera (Helopidæ)*, chiefly from Terra del Fuego." They formed part of the collections made by Mr. Darwin on his exploring voyage, and were originally described by Mr. Waterhouse, Sen., but the MS. was lost, and the insects had thus remained unnoticed up to the present time.

Part ii of the 'Transactions' for 1875 was on the table.

Haggerston Entomological Society.—The Eighth Annual Exhibition of this Society was held on Thursday and Friday, November 11th and 12th, at their Rooms in Brownlow Street, Dalston. Many rare insects were exhibited. Among others a fine variety of *C. glabraria* by Mr. Harper, a dark variety of *E. trilinearia* by Mr. Lovell, a striking variety of *S. tiliæ* by Mr. Clark, three black specimens of *B. abietaria* by Mr. Pratt, varieties of *P. cytisaria*, *G. quercifolia*, and *N. plantaginis* by Mr. J. Moore, &c. Messrs. Biggs and Bryant exhibited a long series of *S. convolvuli*, some of them very fine; Mr. Pratt, *H. asellus*, *L. pulveralis*, *C. gnaphalii*, and *D. albimacula*; Mr. W. H. Danby, *C. gnaphalii* and *L. albipuncta*; Messrs. J. W. and C. Macqueen, *S. chrysidiformis* and *N. agathina*; Mr. Whale, *D. albimacula*; Mr. Meek, *A. nemoralis*, &c.; Mr. Packman, *A. Iris*; and Mr. Machin, a new species of the genus *Eupœcilia*; also *P. grevillana*, *L. servillana*, *C. nimbana*, *E. curvistrigana*, *R. resinana*, *P. paludana*, and a splendid series of *P. upupana*; while last, but not the least interesting, Mr. Hoey exhibited living larvæ of *H. derivalis* feeding on dead oak leaves, their natural food.—Henry Bartlett, *Secretary*.

SOUTH LONDON ENTOMOLOGICAL SOCIETY.—The usual Annual Private Exhibition of this year's captures (held this season in place of a public exhibition, as heretofore) by the Members, took place in the Society's Rooms, 104, Westminster Bridge Road, S.E., on November 4th, 1875, and was well attended, about forty Members being present, the greater part of whom contributed.

Of the large number of species of *Lepidoptera* exhibited (amongst which were many striking varieties), the following are some of the most noteworthy:—

Mr. Sydney Webb, of Red Hill: *Argynnis Selene*, vars.—one golden hued, another silvery; *A. Euphrosyne*, var. with blurred markings of upper wing, the lower almost entirely dark; *Euchelia jacobeæ*, pale var., with ordinary markings very elegant owing to a slight diaphanous scaling; *Vanessa Io*, of unusually dark colour, almost looking as though it had been dipped in oil—bred; and many others.

Mr. A. Jones, of Eltham: *Lycæna Corydon*, light brown variety of ♀, Deal, August; *Ephyra pendularia*, ♀ with centre of fore wing orange colour, Tilgate, May; *Noctua sobrina* (2) bred from larvæ taken in Perthshire this summer; *Rusina tenebrosa*, black form, from Rannoch; *Noctua neglecta*, var., bred, larva from Rannoch; *Cidaria corylata*, pale var., Rannoch.

Mr. J. P. Barrett, of Peckham: *Arge Galathea*, fine var., Gravesend; *Apatura Iris* and *Nola albulalis* (series), Strood; *Acronycta alni*, bred, larva from the New Forest; *Agrotis ravida*, Sheerness; and many others.

Mr. Tugwell, of Greenwich: *Ophiodes lunaris*, taken this season at Abbots Wood, Lewes; *Xylina conformis*, series, bred, Llantrissant; *Dianthœcia albimacula*, Portsmouth; *Triphœna orbona* (var. *Curtisii*), Aberdeenshire; *Corycia taminata*, suffused var., Strood; and *Agrotis nemoralis* (series), Abbots Wood.

Dr. Lucas, Westminster Bridge Road: *Sesia chrysidiformis* (bred), *Asthena sylvata*, *Dianthœcia albimacula*, *Heliothis marginata*, *Emmelesia affinitata*, and others from Folkestone.

Mr. Shearwood, of Norwood: *Erastria venustula*, Horsham; *Noctua ditrapezium*, Brighton; *Stenia punctalis*, Eastbourne; *Heliophobus hispida*, Devonshire; *Dianthœcia albimacula*, Portsmouth; and others.

Mr. Williams, Old Kent Road: *Notodonta chaonia*, bred, larvæ from Tilgate; *Boarmia abietaria*, bred series, larvæ from Mickleham; *Trichiura cratægi*, bred series; and others.

Messrs. Farn and Bird, of Dartford: A box of *Tineina* and *Crambites*, containing about 1400 specimens (consisting of a large number of interesting and rare species) from various localities, and all taken during the past season.

Mr. Briggs, Lincoln's Inn: *Lycæna Ægon*, gynandromorphous specimen; *L. Alexis*, hermaphrodite, Folkestone, July; *Lemiodes pulveralis* (2), and *Crambus Verellus*, Folkestone; *Zygæna filipendulæ*, five vars.; and others.

Mr. Weston, Islington: *Arge Galathea*, var. with fore wings almost colourless; *Satyrus Janira* vars.; *Lycæna Corydon*, *Ægon*, and *Alexis*, vars.; *L. Adonis*, blue forms of ♀ upper side, and a ♂ var., also vars. of under-side; *Polyommatus phlœas* vars.; *Syrichthus alveolus*, a streaky var.; *Ennomos tiliaria*, bred pale and dark vars.; *Zygæna filipendulæ*, vars. with sixth spot indistinct or absent—bred; *Spilodes palealis*, *Tethea retusa*, and others—bred examples; also very many interesting *Tortrices*.

Mr. Hoey, Peckham: Life history of *Limenitis Sibylla*; also preserved larvæ of *Herminia derivalis*, *Acidalia inornata*, *Ptilophora plumigera*, *Trichiura cratægi*, and others.

Mr. Oldham, Hackney: *Leucania albipuncta*, *Colias Edusa* (var. *Helice*), and others from Folkestone; *Carsia imbutata* and *Hyria auroraria*, Carrington Moss; and others.

Mr. S. Stevens: Vars. of *Lycæna Ægon* and *Corydon*, *Hesperia linea* and *comma*, &c.

Mr. Ficklin, of Kingston: *Macaria alternata*, series, Coombe Wood; *Geometra papilionaria*, bred series; *Ennomos erosaria*, *fuscantaria*, and *tiliaria*, &c.—bred examples.

Mr. Standen, of Surbiton: *Xylina semibrunnea*, Oxford; *Melanthia rubiginata* and *Noctua Dahlii*, Wicklow; *Aplecta herbida*, New Forest; *Trachea piniperda*, Esher; also bred examples of *Acidalia emutaria*, &c.

Messrs. Moor and Gibbs, Old Kent Road: *Neuria saponariæ*, *Epunda lutulenta*, *Acontia luctuosa*, and *Hecatera dysodea*, Margate; *Heliothis dipsacea*, Felixstowe; *Bombyx callunæ*, Bodmin; and others.

Mr. Bliss, Ladywell: *Spilodes palealis*, *Leucania comma*, and *Miana literosa*, Lewisham; *Xylina semibrunnea*, *Cabera rotundaria*, *Epunda lutulenta*, *Geometra papilionaria*, *Lithosia griseola*, &c., from Darenth Wood; *Acidalia rubricata*, Box Hill; *Nudaria senex*, Tilgate; *Tephrosia consonaria*, *Eurymene dolabraria*, and others from West Wickham.

Messrs. C. and S. Channon, of Lewisham: *Limacodes asellus*, *Zygæna meliloti*, *Leucania pudorina*, *Cleora glabraria*, *Boarmia roboraria*, *Acidalia emutaria*, and many others from the New Forest; *Leucania albipuncta*, West Wickham Wood; *Notodonta dictæoides*, *Lithosia quadra*, *Cabera rotundaria*, *Eremobia ochroleuca*, and others from Darenth Wood; *Xylina semibrunnea*, *Camptogramma fluviata*, *Tethea retusa*, *Cucullia chamomillæ*, *Cirrhædia xerampelina*, *Agrotis saucia*, *Amphidasis prodromaria*, &c., from Lewisham.

Various species of *Coleoptera* taken this season, were exhibited by Mr. Spiers, and by Mr. Champion.

Mr. Marsh, and Mr. H. D. Power, contributed *Hymenoptera*, the former exhibiting many species of *Tenthredinidæ*, and the latter species belonging to the *Aculeate* and *Fossorial* groups.—G. C. Champion, *Secretary*, 274, Walworth Road, London, S.E.: *November 9th*, 1875.

Review.

Catalogue des Hémiptères Hétéroptères, Cicadines et Psyllides d'Europe et du Basin de la Méditerranée.

Under this title, has recently been published the 2nd edition of Dr. Puton's Catalogue of the Hemiptera of Europe, &c. The first came out in 1869, but the new species described since then, and the alterations in synonymy, &c., have been so numerous, that a new edition was much wanted, and will be most acceptable to all who study European *Hemiptera*. The increase in the number of species given in the present Catalogue over that in 1869 is 260, but this does not represent all the new species that have been discovered, because a large number of the so-called species of 1869 have now been sunk as synonymous with others. The present is a full synonymic list of all the European species of *Heteroptera*, including also those of the Mediterranean basin, and has been extended also to the *Homoptera*. It is printed in two forms; one a catalogue of reference, in two columns; the other for labelling, in one column. They are admirably got up, and the only thing to be wished is that the labelling catalogue had been printed on thicker paper. There is, however, one error that must be pointed out, viz., that *Oncotylus pilosus*, given as a species on p. 42, is only a variety of *Macrocoleus solitarius*, as noticed by Messrs. Douglas and Scott in this Magazine, vol. x, p. 277. There are still many species given as doubtful, which we may yet hope to see cleared up; for instance, it may well be believed that the number of species in the genus *Corixa* (68) will have to be considerably reduced. We are sure all Hemipterists will unite in thanking Dr. Puton for this and his other excellent works on *Hemiptera*.—E. S.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA (ATHYSANUS).*

(continued from Page 100.)

BY JOHN SCOTT.

Section C.

Distance between the inner margin of the eyes at the base of the head more than twice the length down the centre; anterior margin sub-rotundate.

Crown yellow, with a broad transverse black streak in a line with the anterior margin of, and extending to, each eye; middle of the anterior margin with an arcuate black streak, best seen from in front. *Face* black, with a narrow central line, apex, and 7-8 transverse, slightly curved streaks on each side, yellow; near the upper margin of each eye, and between the latter and the side of the lobe is a conspicuous yellow spot. *Clypeus* yellow, base and a broad central line black; *loræ* yellow, narrowly margined with black. *Elytra* longer than the abdomen, generally fuscous or brownish, nerves yellow; ante-apical areas here and there pale in the middle; two apical areas next the dorsal margin pale. *Wings* pale fuscous; nerves darker. *Thighs:* 1st pair yellow, base broadly, and a ring, or sometimes only a spot, on the lower margin towards the apex, black. Length 1½—1¾ line ..... 14. STRIOLA, Fall.

A small species, and easily recognized by the black streak on the crown and the pale nerves of the elytra. I sometimes fancy, on examining my specimens, that we have another species mixed up with the above, in which the head is a little more pointed in front, the elytra testaceous, shading off to very pale straw colour on the costal margin, and having the genital plates of the ♂ yellow, whereas in *A. striola* these last are usually black. For the present, however, I leave the matter as it is, until I have completed my dissections.

Crown brownish-yellow, with a transverse black streak on the anterior margin extending from eye to eye; across the middle a brown streak, in which are two large shallow foveæ. *Face* black, with 6-7 fine, transverse, yellow lines. *Elytra* longer than the abdomen, brownish-yellow, shining; nerves paler than the disc, and narrowly margined on each side with dark brown. *Corium:* ante-apical areas adjoining the costal margin dark brown or blackish, frequently palish in the centre; apical areas dark fuscous, sometimes paler in the centre. *Wings* dark fuscous; nerves black. *Thighs:* 1st pair, sordid yellow, with two narrow black rings. Length 2¼—2½ lines.....15. NERVOSUS, Fall. (*Verralli*, Scott.)

This insect was sent by me to the Continent before it was described, to ascertain whether it was amongst Fieber's insects or drawings, and was returned as unknown. Too late to prevent its appearance under a new name, I stumbled upon the Fallénian description, and, on reference to Fieber's Cat., I find he has placed it in a new genus of his own, in which he is followed by J. Sahlberg, viz., *Paramesus*. It seems

to be a scarce species on the Continent, and was described by Stål in the Förhandlingar, 1847, 174, 4, under the name of *Athysanus obtusifrons*.

Two other representatives of this genus were forwarded by Mr. Douglas to Dr. J. Sahlberg for identification, who returned one of them as *A. distinguendus*, Kirschb., without doubt, and the other as perhaps *A. convexus*, Kirschb. I have hesitated to describe these species, although I see no reason why they should not be found in England, for the following reasons, viz. :—Kirschbaum places his *distinguendus* in a group of which he makes *plebeius*, Fall., his type, having milk-white patches, especially upon the transverse nerves, of the elytra, and as I fail to detect these patches, although Kirschbaum says they are less distinct than in the typical insect, I at present believe this to be only a form of *A. obscurellus*. The other, ? *A. convexus*, appears to me to approach *plebeius* more than the division of which *obsoletus*, Kirschb., is the representative, and there being only a ♀ which does not bear out the description of the author, it is perhaps wiser to wait until we see further. The extraordinary amount of variation in colour in the whole of the species of *Homoptera* renders them extremely difficult to deal with, and perhaps the climax is attained in *Iassus*, *Thamnotettix*, *Athysanus*, and *Deltocephalus*.

Genus ALLYGUS, Fieber, *ined.*

The name for this new genus was proposed by Fieber, in his Kat. der Europ. Cicad. (1872), and, although he may not have left any details of the characters by which he defined it, except perhaps those in his drawings which I have not seen, I think there can be but little doubt that his first idea for separating the species from *Athysanus*, auctt., was derived from Burmeister's Gen. Ins., vol. i, on the plate bearing the name *Iassus* (the plates are not numbered, neither is the letter-press paged), and the drawing of the elytron numbered 8 on that plate. There it will be seen that the ordinary ante-apical areas to which we have been accustomed are broken up at irregular intervals into smaller areas by means of transverse nerves. These are permanent, and not mere "sports" or freaks, such as are often met with amongst many of the *Homoptera*, where, in a single insect, the neuration on the one elytron is very different to that on the other. The shape of the insects is also favourable to their removal here. The head is narrower, and the outline somewhat more boat-shaped than in *Athysanus*. It is peculiar also that all the species are reticulated, and have their transverse nerves white. Fieber's Catalogue shews sixteen

species as European, of which ten are his own naming; nine of these have never been described, and, except that the types or the drawings are in the possession of MM. Lethierry and Puton, they might as well never have been named.

The following are the principal characters by which the genus may be known :—

Head—crown slightly convex; anterior margin rounded, angle obtuse; distance between the inner margin of the eyes at the base twice or more than twice the length down the centre; basal margin concave. *Eyes* moderate, outer margin in a line with the lateral margin of the pronotum. *Ocelli* minute, placed on the anterior margin near to each eye. *Face* convex. *Clypeus* reaching to the lower margin. *Cheeks* wider than long, with a longitudinal channel in a line with the lower angle of the eye: *loræ* somewhat lozenge-shaped, the outer margin rounded.

Thorax—pronotum transverse, sub-hexagonal; anterior margin convex; lateral margins rounded; posterior margin concave. *Scutellum* triangular, apex acute. *Elytra—clavus :* axillary nerve joined to the central nerve by a transverse nerve springing from the centre of the former; central nerve and claval suture united at irregular intervals by 3–4 transverse nerves. *Corium :* ante-apical areas divided here and there by transverse nerves.

Abdomen : genital valve short, projecting but a little way beyond the margin of the last abdominal segment; genital plates elongate, somewhat parabolic.

Crown somewhat bone-white; extreme anterior margin with four black spots, best visible from in front, and a black patch next each eye, its inner margin half encircling the ocellus; in the middle, two black spots about equidistant from each other and the eyes, and posteriorly a smaller spot, sometimes obsolete, near each eye. *Face* black, with about seven short, transverse, yellow streaks on each side, and a narrow, longitudinal, central line joined to a broad transverse band before the apex, also yellow. *Clypeus* yellow, with a black, longitudinal, central line widened towards the apex; *loræ* yellow, margined with black, except at the apex next the clypeus. *Elytra* black, longer than the abdomen. *Clavus :* suture and inner marginal nerve testaceous; at the apex of the central nerve a large, white, somewhat semi-ovate patch, in which is a sometimes divided black streak next the claval suture; along the inner margin between the base and the apex of the 1st nerve, three or four white spots; disc between the nerves reticulated with brown. *Corium :* costal nerve testaceous-white; 1st and 2nd transverse nerves white, the colour on the former extending for a little way up and down the longitudinal nerves forming an H-shaped character; costal margin with a white patch opposite the two transverse nerves, in the former generally

a pitchy-black streak, and in the latter a small, round black spot; apical areas testaceous, their bases and apices fuscous-black; longitudinal nerves finely spotted with brownish-yellow. *Thighs:* 1st pair pale testaceous with a broad black ring at the base, and another narrower one before the apex.

♀. Brown, finely reticulated with black. *Elytra:* apices of the nerves of the clavus, and generally all the transverse nerves of the corium, white.

Length, ♂, 2½, ♀, 3 lines. 1. MIXTUS, Germ.

Sometimes the ♀ is almost identical with the ♂ in colour and markings.

I believe this to be the commonest of the three species at present known in Britain, and at once to be distinguished from the other two by the characters on the head and the black elytra.

♀. *Crown* pale testaceous, somewhat dingy, with a lunate brown streak, its extremities passing the inner margin of the ocelli, and enclosing four brown spots on the anterior margin. *Face:* upper half brown, lower half black; the former with 4–5 pale transverse streaks on each side, the latter with a narrow, longitudinal central line, and the sides next the apex margined with testaceous. *Clypeus* testaceous, base and a broad central streak black; cavities, in which the pale antennæ are set, black. *Cheeks* and *loræ* pale testaceous. *Elytra* longer than the abdomen, greyish or dingy testaceous. *Clavus* next the dorsal margin spotted with dark brown, interrupted by the nerves. *Corium:* all the transverse and portions of the longitudinal nerves white; area immediately below the basal one, transversely reticulated with dark brown; inner margin of some of the nerves of the whitish ante-apical areas here and there spotted with dark brown. *Thighs:* 1st pair yellow; on the outside at the base two short, longitudinal, black streaks and a transverse half ring before the apex also black. Length 3 lines.

2. COMMUTATUS, Fieb., = *atomarius*, Kirschb.

As Germar had already described a species belonging to this genus under the name of *atomarius*, and with which Kirschbaum's species had nothing whatever to do, Fieber, in his Catalogue, proposed for it the name I have above used. *A. atomarius* is a much larger insect than *A. commutatus*, and Fieber refers *Heydeni*, Kirschb., to it. I only possess a single example, from which the foregoing description was made, which was named for me by the late Dr. Fieber.

Crown testaceous-grey, with a black slanting 7-shaped character on each side, its upper edge margining the ocelli for a short distance; near the base a small brown spot, placed nearer to the eyes than the middle of the basal margin. *Face* testaceous, with about eight broadish, black, transverse streaks on each side, the two on the frons more or less comma-shaped; longitudinal, central line and the apex forming a ⊥-shaped testaceous character. *Cheeks* and *loræ* testaceous, the latter with a small black spot nearly in the centre. *Elytra* longer than the abdomen, testaceous. *Clavus:* apex dark brown, composed of confluent spots, margins of the nerves finely spotted with dark brown, more or less interrupted in different individuals; apices of the nerves and a small spot above each, white. *Corium:*

anterior marginal nerve brown, the areas adjoining the latter from the base to the apex transversely reticulated with dark brown; the next adjoining areas also transversely reticulated but much interrupted; margins of the nerves of the other areas spotted with dark brown; transverse nerves white. *Wings* fuscous-brown, nerves piceous. *Thighs:* 1st pair yellow, with a black ring before the apex. Length, ♂, 2¼, ♀, 3 lines. 3. MODESTUS, Fieb. *ined.*, (*atomarius*, Marshall).

This species is easily recognizable by the slanting 7-shaped character on the crown.

I have examined the exponents of *A. atomarius* in the collection of the Rev. T. A. Marshall, and compared them with his description in the E. M. M., vol. iii, p. 84, 22, and can confidently refer them to the above.

Lee: *August*, 1875.

DESCRIPTIONS OF TWO NEW SPECIES OF *LUCANIDÆ* (*COLEOPTERA*).

BY CHAS. O. WATERHOUSE.

ODONTOLABIS GOUBERTI, *sp. n.*

Statura fere O. gazellæ; totus niger; elytris nitidioribus, distinctius punctulatis.

♂. *Mandibulis capite paulo brevioribus, crassis, ad basin subito incurvatis; basi dente magno obtuso, medio dente conico, dein ad apicem dentibus* 2—3 *minoribus, intus armatis. Capite magno, sub-opaco, confertim granuloso, pone oculos dente sat acuto antrorsum directo instructo; oculorum cantho lato, depresso, externe arcuato. Thorace sat convexo, subtilius granulato, medio nitidiori, antice angustato, dente laterali magno, triangulari. Elytris thorace vix latioribus, sat nitidis, ad latera subopacis, sat crebre distincte punctulatis, latitudine ⅓ longioribus. Tibiis anticis extus denticulis* 2 *vel* 3 *minutis acutis armatis.*

Long. (*cum mandib.*) 21—26 *lin.*

♀. *Capite ut in O. gazella; thorace dorsim minus depresso, antice regulariter angustato; dente laterali haud producto; emarginatione ad angulos posticos obliquo; angulis posticis haud acutis. Long.* 19 *lin.*

This species resembles *O. gazella* in general form, but the elytra are rather more expanded below the shoulders. The head in the male is much broader and larger in proportion; the canthus of the eye is as in *O. carinatus*, but much more dilated. The spine behind the eye is as in *O. gazella*, but is more acute and directed forwards. The mandibles are short and strong, suddenly bent inwards at the base, the external outline being somewhat flexuose; there is a strong blunt tooth at the base, a second about the middle, and between this and the apex are two or three smaller blunt teeth; when the mandibles are closed there is an open space left between the basal and the

mesial teeth. The thorax gradually narrowed in front from the lateral tooth, which is triangular as in *O. carinatus*; the incision at the posterior angles is also as in that species. The elytra are rather more distinctly, and somewhat less closely, punctured than in *O. gazella*.

The head of the female is as in *O. gazella*; the thorax is relatively broader than in that species, gradually narrowed from the lateral tooth to the anterior angles, thus the form of the thorax is nearly that of *O. bicolor*, ♀, but it is rather more narrowed in front.

Hab.: Mindoro, Philippines. Coll. Major Parry.

CYCLOMMATUS ZUBERI, *sp. n.*

Pallide castaneus, æneo-micans (♂ griseo-pubescens); corpore subtus, antennis pedibusque piceo-æneis, femoribus supra rufo-testaceis; thorace linea suturali ænea.

♂. var. max.; mandibulis longis, regulariter arcuatis, intus prope basin dente magno acuto, prope apicem dente brevi lato; clypeo lato, reflexo, recte truncato. Long. (sine mandib.) 16 *lin., mandib.* 9½ *lin.*

♂. var. minor; mandibulis capite paulo longioribus, intus basi dente magno apice emarginato, ad apicem denticulis 5—6 *armatis; clypeo lato, truncato, obsolete tridentato.*

Long. (sine mandib.) 11—13 *lin., mandib.* 4—5½ *lin.*

This species closely resembles *C. affinis*, but is darker in colour, more shining; the pubescence (only in the ♂) is rather less scale-like and more dense. The thorax in both sexes has an æneous sutural line, and an æneous stripe on each side towards the sides. The male in the large variety has the mandibles furnished with a single large tooth at the base, and between this and the apical teeth there are indications of three or four small teeth, the foremost of them being most prominent; the sub-apical tooth is broad and short, and between this and the apex of the mandible are two or three small teeth.

The smaller males have the basal tooth of the mandibles emarginate at its apex; between this and the sub-apical tooth there is sometimes a very small tubercle; the sub-apical tooth is acute, and not much larger than the three or four teeth which follow it.

The female pale castaneous, with a spot on the middle of the forehead and behind each eye blackish-æneous; the punctuation is crowded. The thorax has three broad dark æneous stripes; the punctuation is thick and strong, less strong and more close than in *C. affinis*. The elytra are very closely and somewhat strongly punctured, less closely and less strongly than in *C. affinis*; the suture and the extreme margins are æneous, and there is also an indication of a stripe on the disc of each elytron. The whole insect is much broader, and less convex, than the female of *C. affinis*.

Hab.: Mindoro, Philippine Isles.

Coll. Major Parry and Brit. Mus.

British Museum: *November 17th*, 1875.

DESCRIPTION OF A NEW SPECIES OF *CHIASOGNATHUS* (*COLEOPTERA*; *LUCANIDÆ*).

BY MAJOR F. J. S. PARRY, F.L.S.

CHIASOGNATHUS HIGGINSI, *sp. n.* (*var. max.*).

♂. *Castaneus, nitidus, purpureo vel viridi-æneo micans, aureo pubescens; mandibulis gracilibus, deflexis, sinuatis, capite prothoraceque paulo longioribus, granulosis, apicibus inflexis intus minute nodoso-serratis, denteque parvo sub-apicali instructis; antennæ mutilatæ. Capite quadrato, antice elevato utrinque nodoso, angulis ante oculos acute productis; prothorace transverso, convexo, disco elevato, irregulariter rugoso-punctato, angulis anticis posticisque productis, rotundatis, leviter reflexis, lateribus profunde foveolatis, minute nodoso-serratis, elytris crebre subtiliter punctatis, rugoso-vermiculatis, pedibus concoloribus, æneo tinctis, tibiis anticis curvatis, extus et intus minute irregulariter denticulatis, posticis quatuor rectis, sub-lente extus spinis 3 vel 4 minutis instructis, tarsis nigris.* *Long. corp. unc.* 1, *lin.* 2; *mandib. lin.* 6.

♀. *Niger, nitidus, obscure viridi-æneo tinctus; mandibulis brevibus robustis, valde rugoso-punctatis; capite parvo, antice binodoso-elevato, fortiter punctato, angulis ante oculos rotundatis; prothorace sub-lente crebre et minute punctato, angulis anticis productis, rotundatis, posticisque obliquis, lateribus irregulariter nodoso-serratis. Elytris elongatis, sub-convexis, dense subtiliter punctulatis, vermiculatis, angulis humeralibus rotundatis pedibusque concoloribus punctatis, tibiis anticis extus tridentatis, intermediis bispinosis, posticisque spinâ minutâ prope apicem instructis.* *Long. corp., mandib. incl., unc.* 1.

Habitat: Bolivia. Coll. Parry.

C. Higginsi, ♂, although having a close resemblance to the members of the genus *Sphenognathus*, may be at once distinguished by the slender sinuate and deflexed mandibles, characters in these organs peculiar to the genus *Chiasognathus*. *C. Higginsi* forms an appropriate link between the two genera. We are indebted to C. Buckley, Esq., for the discovery in Bolivia of this new species; unfortunately, most of the specimens sent (chiefly females) arrived in a very indifferent condition. With reference to the females, although differing conspicuously from the ♂, both as to coloration and total absence of even any trace of pubescence either on the upper or under surface of the insect, they may, nevertheless, I think, be united, without hesitation, to the males, instances occurring in other allied species, showing, in this respect, the same remarkable difference between the two sexes.

18, Onslow Square, S.W.:
November 1*st*, 1875.

NOTES ON BRITISH *COLEOPTERA*, WITH DESCRIPTIONS OF THREE NEW SPECIES.

BY E. C. RYE, F.Z.S.

HYDROPORUS ASSIMILIS, Payk.

I am indebted to Mr. Horace Francis, of Lee, for ♂ and ♀ of a variety of this insect, taken by him at Keswick, Cumberland. They differ from the ordinary form in being rather smaller, with only the tip of the apical joint of the antennæ dark, and in having in the ♀ the faintest possible indication of the ordinary two basal thoracic dark spots, which in the ♂ are entirely absent. Mr. Francis informs me, that of thirty-six specimens taken at Keswick, nine have no spots on the thorax, sixteen have them indistinct, one has them united, and the remainder have them separate and well marked. In about half the number, the extreme tip only of the antennæ is dark. Neither Aubé, Schaum, or Thomson notice any variation in the thoracic marking. The 6th elytral black stripe in the above mentioned ♂ is much abbreviated; but all the stripes vary much in length and width in this species,—I have one specimen in which the whole elytra are suffused with black, leaving faint traces of discal yellow lines, and a thin border of yellow, expanding above and below the middle of the sides into a larger light spot.

ALEOCHARA HIBERNICA, *sp. n.*

Linearis, nigro-picea, pedibus, antennarumque articulis quatuor basalibus, testaceis; capite nitido, sat evidenter haud crebre punctulato, thorace convexiusculo, quam caput crebrius punctulato, basi obsolete foveolato; elytris hoc fere longioribus, fortius at minus crebre punctulatis; abdomine nitido, suprà sat crebre punctato, apice lœviusculo.

Long. 1½ *lin.* (*Anglic.*).

Of the size, and somewhat of the build, of *Homalota cambrica*, Woll. (*velox*, Ktz.), but darker, more convex, elongate, and shining, less closely punctured, with shorter antennæ, &c. Closely allied, according to M. Chas. Brisout, to *Aleochara nigrata*, Fairm., from which it differs in its finer and closer punctuation, and lighter femora. It cannot satisfactorily be compared with any British species, owing to its linear shape, feeble punctuation, and very small size; in the latter respect, however, it is about equalled by the smallest *A. nitida* in my possession. The facies, in fact, is not that of an *Aleochara* at all, the antennæ being gradually and very slightly widened towards the apex, and there being the reverse to a tendency to the fusiform shape. The anterior tarsi are, however, 5-jointed.

A single specimen was taken by Mr. G. C. Champion, in June last, out of moss at the top of Slieve Donard (a mountain 2800 feet high, Co. Down, Ireland), in company with *Oxypoda rupicola*, mihi, and other hill-frequenting species.

Mem. *Aleochara nigrata*, Fairm., described as a *Calodera*, Faune Ent. Franç., Col. i, p. 380, from two specimens found under moss near Paris, by M. Brisout, is omitted from the third edition of De Marseul's Catalogue, 1867, though it appears as an *Aleochara* in that of Dr. Grenier (1863).

HOMALOTA EGREGIA, *sp. n.*

Elongata, linearis, depressa, parce pubescens, nitidiuscula, brunneo-testacea; capite, fere lævi, abdominisque segmentis 4^to^ et 5^to^ suffusim, piceo-nigris; antennis capite et thorace longioribus, articulis penultimis haud fortiter transversis; thorace obscuriore, obsolete canaliculato, elytris hoc vix dimidio longioribus, obsoletissime punctulatis; abdomine suprà lævigato. *Long.* 1½ *lin.* (*Anglic.*).

(Section C, group viii. of Dr. Sharp's 'Revision'; 4th group, Kraatz.)

Allied to *H. rufotestacea*, Ktz., and *elegantula*, Bris., which it resembles in colour; differing from both in the structure of its antennæ, which are longer, gradually and but slightly widened towards the apex, with the 4th joint considerably less transverse, joints 5–10 transverse-obconic, and the apical joint very much longer. From *rufotestacea*, it differs also in its rather more depressed build and shining appearance, the still more obsolete punctuation of its head; its much more shining, darker, more obsoletely channelled and rather more evidently and widely punctulated thorax; and rather longer elytra. From *elegantula*, it may at once be known by its smaller size, unpunctured head, more shining thorax, &c.

A single specimen, taken by Mr. G. C. Champion at Caterham, by evening sweeping in June, 1873 (recorded as *H. rufotestacea*, Ent. Mo. Mag., x, p. 39), has been returned by Dr. Sharp and M. Brisout as unknown to them.

HOMALIUM GRACILICORNE, Fairm.

M. Brisout, the captor of the single example on which this species was described, having been fortunate enough to take some more, has kindly sent me one, which agrees *ad punctum* with the specimen on which I introduced the species as British.

COLON ZEBII, Kraatz.

Barnevillii, Ktz.; Tournier, Ann. Soc. Ent. Fr. (4), iii, p. 146, pl. v, fig. 10 (*forma brevimucronata*).

Two ♂ specimens, one taken by Mr. E. A. Waterhouse, at Studley, near Ripon, in May last, the other by Mr. Champion, taken at Caterham, in June, 1873, have been returned to me by M. Henri Tournier, of Geneva, as *C. Barnevillii*, a species new to our list. It is described as much resembling *C. Zebii*, but of a constantly smaller size, with the antennæ always entirely testaceous, the thorax darker than the elytra, which are more strongly punctured, and the shorter and less regularly curved hind femoral spine of the male. This spine differs in development in these two examples, so that I have been induced to examine further specimens of *C. Zebii*, and can only come to the conclusion that *C. Barnevillii* is an undeveloped form of it, and not a good species. As to size, I have examined undoubtedly ♂ *Zebii*, only one line long (it varies to over 1½ lin.), as small as the smallest *Barnevillii*; the antennæ are often entirely testaceous also in *Zebii*; the thorax is not darker than the elytra in one of the two British *Barnevillii* above noted, and is often darker in *Zebii*; I see no difference in the punctuation; and I find among Mr. Champion's specimens a ♂ with the spine intermediate in curvature and length between *Zebii* and *Barnevillii*, there being, moreover, a distinct difference in these respects between the first mentioned two specimens, as above noted.

PHALACRUS.—M. Tournier, who is still engaged upon a Monograph of this genus and its allies, now considers the insect referred to as *P. Humberti*, Tournier, Ent. Mo. Mag., ix, p. 37, to be a variety of *P. corruscus* (I have further British examples). A very small form of *P. corruscus*, scarcely three-fourths of an English line long, has come under my observation recently (in some numbers); this only differs in size from the type. I have found another example of *P. Brisouti*, mihi, taken at Deal, and several specimens of *P. brunnipes*, Bris., from salt marshes at Chatham and Sheerness, among some insects belonging to Mr. Champion.

OLIBRUS HELVETICUS, Tournier, MS.

A single example, taken by Mr. Champion at Caterham, in July, 1872, has been returned to me with this name by M. Tournier. Its shining black colour, and rather evident elytral punctuation, distinguish it from all known British species except *O. particeps*, from which its broader and shorter form will suffice to separate it.

CRYPTOPHAGUS SUBFUMATUS, Kraatz, Stettin. ent. Zeit., 1856, p. 241.

A single specimen from the London district, in Mr. G. C. Champion's collection, is corroborated as belonging to this species by M. Brisout. It resembles *C. validus*, Ktz., being nearly as large, but narrower, especially in the thorax, of which the anterior callosities are more distinctly prominent.

ATOMARIA DIVISA, *sp. n.*

Breviter ovalis, convexa, fere gibbula, sub-glabra, rufo-ferruginea, thorace haud transverso, antrorsum leviter angustato, basi anguste haud profunde transversim impresso, marginis medio haud elevato; elytris nigris, apice humerisque rufescentibus, parce evidenter punctatis, femoribus piceis. *Long. corp.* ⅔ *lin. (Anglic.).*

Habitat Angliam.

Closely allied to *A. rubricollis*, Bris., from which it differs in its much shorter build, the much stronger punctuation of its elytra, which are less contracted behind, its black scutellum, almost quadrate thorax, and darker femora.

Of English species, it can only be compared with *A. nigripennis*, on account of its red head and thorax and black elytra; it differs, however, from that well-marked species in its shorter and more convex build, in its thorax being longer, more convex, much less narrowed in front, with a scarcely visible basal transverse depression, and no elevation before the scutellum, the less contracted lower third of its elytra, which are more strongly punctured, and have reddish humeral points and apex, and in its darker femora.

A single specimen, in my own collection.

NANOPHYES GRACILIS, Redt.

A specimen of the insect recorded as British by me under this name, has been returned by M. Brisout as *N. geniculatus*, Aubé. M. Brisout says "il est bien possible que ce soit aussi le *gracilis*, Redt." I have forwarded the specimen to Dr. Redtenbacher, who tells me that, after a careful comparison of my insect with the type of his species, he finds the two are perfectly identical.

The synonymy will therefore stand:—

Nanophyes gracilis, L. Redtenbacher, Fauna Austriaca, Edn. 1 (1849), p. 370.

geniculatus, Aubé, Ann. Soc. Ent. France, 1864, p. 327.

Dr. Redtenbacher also points out that the reference in Gemminger and Von Harold's Catalogue of *N. gracilis* to *Chevrieri*, Boh. (in Schön. Curc., viii, 2, p. 193), is incorrect, since the latter insect is described as having the femora *uni*-spinose. With regard to this character, I observe that M. Henri Brisout, in his Monograph of *Nanophyes*, p. 28, says of *N. Chevrieri*—"*femoribus uni- aut bi-spinosis.*" This variation in an apparently important structural point is also recorded by him in several other species of the genus, and probably results from the accidental non-development of the weaker of the two spines. However this may be, *N. Chevrieri*, if only from its oblong-ovate form, has certainly nothing to do with *N. gracilis*.

GRAPTODERA LONGICOLLIS, Allard.

This species, of which the ♂ has the basal joint of the anterior tarsi very much triangularly dilated, differs from *ericeti*, All., in its smaller size, shorter and stouter antennæ, almost entirely impunctate thorax, and more finely punctured elytra,—the punctuation of the latter being very minute on a delicately shagreened ground, whereas it consists of larger and smaller punctures mixed in *ericeti*, in which also the thorax is, though finely, distinctly punctured all over. A ♂ and ♀, taken *in copulâ*, and supposed to connect the two species, are returned to me by M. Allard as certainly ♂ and ♀ *longicollis*, and I also possess undoubted females of *longicollis*, quite distinct from *ericeti*. *G. ericeti* occurs at Wimbledon, Esher, Balcombe, Mickleham, New Forest, &c., but *longicollis* has not been found, so far as I know, nearer south than Chat-moss.

GRAPTODERA HELIANTHEMI, All.

This insect is in our lists, but not in our collections; and the supposed exponents of it are, I believe, *oleracea*. It is, however, not uncommon, though rather local, occurring at Chat-moss, Wimbledon, Barnes, Chatham, Cobham, Hanwell, and Ryde, almost always on *Epilobium* (*angustifolium*, especially). Specimens from some of these localities have been returned to me as this species by M. Allard. I am indebted to Mr. J. Chappell for the only ♂ that I have seen, of which the intromittent organ differs much from that of *oleracea* and *montana*. It may readily be known from *oleracea* by its more violet or dark blue colour, rather duller and comparatively shorter elytra, and narrower thorax. The specific name affords another instance of the in-

advisability of attributing one plant to an insect: it was first found on *Helianthemum guttatum*, then on *Poterium muricatum*, and now on *Epilobium*.

GRAPTODERA OLERACEA.

The common insect originally known to us by this name, and afterwards referred to *pusilla*, Dufts., must, according to M. Allard, who has examined some of my specimens, revert to its former appellation. Continental examples of *oleracea* sent to me by that authority also entirely accord with our insect. M. Allard corroborates our *G. montana*.

THYAMIS FERRUGINEA, Foudr.

This species was recorded as British by the late Mr. G. R. Crotch, but is not included in Dr. Sharp's Catalogue, on account (I presume) of the reference of Dr. Power's exponent of it to *T. Waterhousii*, Kuts. M. Allard, however, has returned to me as *T. ferruginea* two examples, one belonging to Mr. Champion (taken at Caterham, July, 1873) and another from my own collection (I have two specimens). These may readily be known from *T. flavicornis* and *pellucida* by their smaller size, and much stouter antennæ, of which the five or six apical joints are blackish; and from the latter also by their much coarser punctuation. From *T. Waterhousii*, in which the apical joints of the antennæ also are blackish, they may be known by their smaller size, rather stouter antennæ, and more coarsely punctured thorax and elytra, which are much narrower and of less gelatinous appearance.

Thyamis atriceps, *cerina*, and *medicaginis*, are corroborated as British by M. Allard.

PSYLLIODES INSTABILIS, Foudr.

Corroborated as British by M. Allard, from a specimen in my collection. This insect differs from *P. cuprea* in its smaller size, darker colour, stouter and darker legs, and more shining head and thorax, of which the punctures are not so close.

Parkfield, Putney, S.W.
October, 1875.

STRAY NOTES ON THE *LEPIDOPTERA* OF PEMBROKE.

BY C. G. BARRETT.

In removing into a new and unworked locality, there is always the excitement of hope that, even if it do not prove very prolific of good insects, there may at any rate be much in the way of very local species to reward energetic research; and when that new locality is far removed from the well-worked districts, and seems from its physical features well suited for insect life, that hope is apt to be heightened into expectation.

I certainly experienced this feeling of hope very strongly, on coming down to this extreme western point of South Wales early last spring, and when I began to see the natural features of the country—a fine stretch of bold rocky coast, indented here and there with sandy bays, on the south; an inner coast (of the noble Milford Haven), parallel with it on the north; its waveless margins lined with narrow strips of salt marsh, and backed occasionally with huge, partially exhausted, quarries; and the cultivated intermediate country, intersected with pleasant lanes, in which an unusual wealth of wild flowers grows,—expectation began to rise high, and to prepare the way for—complete disappointment.

Of *Rhopalocera* but few species can be expected so far west; *Lycæna Argiolus* flies about the holly and ivy; and I have seen *L. Alsus* in the quarries, where *Syrichthus Alveolus* and *Thanaos Tages* occur commonly.

Argynnis Aglaia and *Selene* fly on the coast and over the mountain heaths, and *Paphia* occasionally ventures to show itself in some deep and sheltered valley, when the sun is warm and the brambles full of blossom. Some of the common species are plentiful enough, and show a tendency to variation, which is interesting. Of *Anthocharis cardamines*, I casually took a specimen which has the orange tips suffused down the nervures with blackish in a striking manner; *Lasiommata Ægeria* is dark and richly coloured; *Satyrus Tithonus* appears to exhibit additional spots in the pale portion of the upper-side of the hind wings (but this was overlooked until the species was worn out, and requires further investigation), and from the rarity of aberration among the *Vanessæ*, a *V. Io* with a pale yellowish cloud in the chocolate of one fore wing, and *Atalanta* with an extra white dot appear worthy of record. *Nocturni* were few indeed! the larger *Sphinges* being proportionately better represented than any other group, since *ocellatus* is reported common among willow; *Elpenor* among *Epilobium; ligustri*, of course, in the gardens, and *stellatarum* everywhere; *Atropos*

is said to be common in some seasons, in the larva and pupa states, and the larva of *convolvuli* is sometimes found, indeed a specimen, in the last stage of starvation, was brought me in the autumn. It was recognizable and that was all.

Of "clear-wings" I have seen but one species—*ichneumoniformis*. It was swept up by accident, one day in July, when working for *Tortrices*, and proved to be tolerably common among *Lotus corniculatus*. It is a curious fact, that it seems almost impossible to *see* a specimen at rest on or among its food-plant. I fancy they must sit *under* the leaves or flowers, like *Nemotois scabiosellus*. At any rate, the only way to get them was to "sweep," and this was useless until after 6 p.m. During the forenoon or afternoon sunshine it was impossible to find a specimen on ground from which a dozen might be swept up at seven o'clock in the evening. Its flight even appears to be almost crepuscular, for the only specimen that I saw on the wing was flying rapidly over a high bank at half-past seven in the evening, and looked, in flight, like a large *Tortrix*. I shall not soon forget my surprise at finding what species I had captured in this manner. I have a notion that *Sesiæ* fly at an inconveniently early hour in the *morning*, but this crepuscular habit is new to me.

Bombyces also are nearly absent, but a few *Nola cristulalis* occurred on tree trunks in May; when also I found a solitary ♂ *Diaphora mendica*, and *Lithosia complana* and *griseola*, also singly, in July. Here again poverty of species is redeemed in some measure by variation, for a pupa of *Odonestis potatoria* produced a most beautiful chocolate coloured ♂, nearly as dark as *G. quercifolia*.

Geometræ are very far from numerous or valuable, but curiously enough several of the best species have appeared principally in the garden and little shrubbery at the back of the house. In May, and again in August, *Lobophora viretata* may often be found, more or less faded and worn, at rest on the trunks of a couple of sycamore trees in a sheltered corner, but really fine specimens are scarce enough, for the damp affects their colour in the day. Here also *Eupithecia virgaureata*, *dodonæata*, and *coronata* have occurred; *Acidalia promutata* sits on the lime-stone rocks in the quarries, as also does the chalk-loving *Eubolia bipunctaria* in plenty, and *Acidalia subsericeata*, *Aspilates citraria*, and *Eupithecia absynthiata* are found sparingly among the herbage in the same localities; *Melanippe galiata* is common on the outer coast, and *Emmelesia affinitata* not scarce in the lanes. Still, the general absence of species is remarkable; for instance, on June 19th, I walked eight or ten miles through a hilly, well wooded district, with good hedges

and plenty of shelter, and the only *Geometræ* that I saw were one *Boarmia repandaria* and hosts of *Melanippe montanata;* fortunately the *repandata* was the var. *fimbriata*, and some of the *montanata* were fine dark barred varieties, but the barrenness in insects of such a country, at such a time, is perfectly astounding.

I think I could write a long and interesting chapter on the *Noctuæ* that *do not* occur here,—but ought to. I have not been able yet to work the outside cliffs, and there may be something *there*, but at present the record is meagre.

The attractive qualities of the red valerian (*Centranthus ruber*) to *Noctuæ* are well known. The hills of waste material in some of the great quarries by the Haven are covered with it, so are the old walls all along the back of the town, so is the railway embankment for hundreds of yards (looking splendid from the mingling of large masses of the white variety with the red flowers), and the result is—*exclamationis ! !* I went down to the quarries one evening in June to collect at these flowers: dusk came, and *Noctuæ*, flying as *Noctuæ will* fly when they throw off their day's lethargy; I caught one—*exclamationis*,—I caught another—ditto,—I caught a third—the same,—there was no need to catch any more, they were swarming all around me, and all the same. I never saw such numbers before. I waited till after dark, and swept the valerian flowers—*exclamationis* in hundreds,—everything else was discouraged; *segetum* hardly ventured to show its face; a single *corticea* was a grand capture. Further attempts did not mend matters; *exclamationis* was more abundant than ever, and when it began in the course of nature to die out, was succeeded by *Xylophasia polyodon* in such countless hordes that collecting became positively wearisome. In all the hosts of *polyodon* I did not see a dark variety even. What valerian flowers may furnish in the future is problematical, this year they produced nothing but disgust!

I tried raking the sand-hills in the bays of the outer coast—Tenby, Manorbier, &c.—and took two *Mamestra albicolon*, and two *Leucania littoralis*, that was all; not another *Noctua* worth boxing. Of course, there were *Melanippe galiata* and sundry *Gelechiæ* and *Depressariæ;* but of the teeming abundance of *Agrotis*, for instance, usually found in such situations, there was *not one, not even tritici!* Two or three pupæ did tumble out one day from among the overhanging roots, and in due time produced *Epunda lichenea*, but even this species did not appear to shelter in the perfect state under the banks.

The autumn *Noctuæ* may have come to an untimely end—by water—I cannot say. I have certainly seen one *Luperina cespitis* at a

gas lamp, but the abundance of ivy which crowns many of the old walls, and fills the hedges, has not as yet produced a single insect worth boxing. When I say that all I have seen upon it have been two or three *Phlogophora meticulosa*, *Xanthia ferruginea*, and *Plusia gamma*; that the only moth seen flying along the road for a month past was a solitary *Orthosia lota*, and that gas lamps produce nothing but a heart-broken *Anthocelis pistacina* or two; I think I have expressed the lowest depths of poverty and degradation to which an unhappy entomological locality could well be reduced.

Of *Pyralidæ* and *Crambina* I have little to tell. The one new *Pyralis* was not kept in countenance by any other species worth taking. Odd specimens of an *early* brood of *Scopula ferrugalis* appeared in June; this I have only once before noticed. The *Crambina* were a little better. *Homœosoma sinuella* appeared at Tenby in June; and in August I found what I believe to be its larvæ in heads of various thistles. *H. saxicola* also appeared sparingly in the quarries with *Oncocera ahenella*, and *Pempelia marmoreæ*. *Anerastia lotella* was of course common on the coast sand-hills; and a salt marsh produced a single *Crambus contaminellus*. The eternal wind along the Haven makes these salt marsh insects very difficult to disturb.

Of *Pterophori*, *microdactylus* flying among *Eupatorium* in the evening, and the larvæ of *lithodactylus* reducing to skeletons the leaves of *Inula conyza*, were almost the only species noticed.

Nearly all that I have so far remarked upon has belonged to the coast district of mountain limestone, but thirty miles up the country is a very different region of wild mountain heaths, where a few local species are, I expect, to be found in plenty. Driving along the flank of Preselly Mountain, at the end of May, I saw *Melanippe tristata* commonly, and at the sheltered side of a bank found *Coccyx vacciniana* flying in abundance in the sun, and settling on the *Vaccinium* plants so quietly that I was able, with no apparatus but a few pill boxes, to secure a dozen specimens in a few minutes; a month later *tristata* was still out, and now accompanied by *Acidalia fumata* and *Cidaria populata*, but *vacciniana* had disappeared, and the only *Tortrices* of interest to be seen were a very fine *Amphysa Gerningana* and the small grey variety of *Sericoris lacunana*, which was formerly mistaken for *rupestrana*.

I saw there what I do not think is very common, the three forms of the pretty little milkwort (*Polygala vulgaris*)—red, white, and blue, —all growing on one bank, and united to some extent by intermediate variations.

Pembroke: *November*, 1875.

DESCRIPTION OF TWO NEW EXOTIC *ACULEATE HYMENOPTERA*, OF THE FAMILIES *THYNNIDÆ* AND *CRABRONIDÆ*.

BY C. RITSEMA.

ÆLURUS FLAVO-PICTUS, *sp. n.*

Male. Length 12 mm.; alar expanse, 18 mm.

Black; the apex of the clypeus (terminating a longitudinal central carina), the little lobe at the base of the cheeks, an interrupted line between the insertion of the antennæ (bordering on elevation), and another on the anterior margin of the prothorax, the central portion of the tegulæ, the post-scutellum, and the apical spines of the tibiæ and of the joints of the tarsi, pale yellow; a spot a little before the tips of the mandibles, some spots on the abdomen beneath, and the claws of the tarsi, reddish-brown.

The head and thorax closely and strongly punctured, thinly covered with cinereous pubescence; head transverse, wider than the thorax, the posterior margin of the cheeks fringed with long silvery hairs; the face before the insertion of the antennæ with a whitish pubescence; the thorax attenuated behind, the scutellum gibbous, the metathorax rounded; the wings hyaline, clouded at the apex, the stigma and nervures black; the coxæ, tibiæ, and tarsi closely covered with short, the femora thinly with long, grey pubescence; the claws of the tarsi bifid.

The abdomen depressed and petiolated, smooth, and shining, very sparingly covered with fine punctures and cinereous hairs; the first segment a little swollen at the apex, the second with an impression at the base, and, as well as the four following, with two faint tubercles a little before the hind border; the ventral scale of the apical segment terminating in a trifid mucro.

Five males sent by the Baron von Rosenberg from Aru, four of which are in the Leyden Museum, the fifth in Mr. F. Smith's collection.

In addition to this species, the genus *Ælurus*, Klug (*Tachynomia*, Guér.) is represented in the Eastern Archipelago by two other species, viz., *Ælurus comatus*, Smith, from Waigiou, and *Ælurus fragilis*, Smith, from Mortai.

PSEN ORNATUS, *sp. n.*

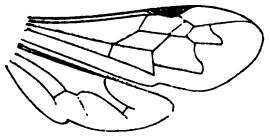
Female. Length, 10 mm.; alar expanse, 15 mm.

Head and thorax black, adorned with yellow; abdomen red.

The head black, smooth, and shining, impunctate, with a sharp carina between the antennæ; the face before the antennæ and the cheeks covered with silvery pubescence; the mandibles yellow with brown tips; the antennæ rather long and slender, the scape yellow, the flagellum fuscous above, pale ferruginous beneath, becoming fuscous towards the apex.

The thorax black, above smooth and shining, with some very fine punctures, the sides somewhat opaque and, as well as the thorax beneath, thinly covered with whitish hairs; the metathorax coarsely rugose; the prothorax yellow above, the mesothorax with two parallel lines not reaching the scutellum, the tegulæ, a spot before the base of the wings, two spots on the scutellum, and the post-scutellum,

yellow; the metathorax with four longitudinal oval yellow spots; the wings hyaline,



the stigma and nervures brown, the neuration as in figure; the anterior and intermediate legs yellow, the coxæ and the femora and tibiæ behind spotted with brown; the posterior pair brown, with the tip of the coxæ, the second half of the femora beneath, and the base, and the apical spines of the tibiæ, yellow.

The abdomen smooth and shining, red, with the second half of the petiole and the apical segment beneath dark brown.

A single female, captured by Mr. Hekmeyer near Mount Ardjoens (East Java), in the collection of the Leyden Museum.

This is the third species of the genus *Psen* from the Eastern Archipelago, Mr. F. Smith having described a species (*Psen erraticus*) from Macassar, and another (*Psen petiolatus*) from Mysol.

Leyden: *October*, 1875.

AN ADDITION TO THE LIST OF BRITISH *HEMIPTERA*.

BY EDWARD SAUNDERS, F.L.S.

LOPUS SULCATUS, Fieb., Eur. Hem., 268, 4.

Black; a spot on each side of the head near the eye; dorsal line and the sides of the thorax in front, the centre of the scutellum, the sides of the corium in front, and the cuneus (except at the apex), pale ochreous, the latter suffused with orange colour outwardly; membrane, in developed specimens, black.

Easily distinguished from our other species by the following characters: from *gothicus* by the shorter pubescence, in the absence of the long hairs on the thighs and antennæ, the narrower form, the thorax constricted in front and its sides more sinuate, by the sulcate scutellum, as well as by the pale (not red) cuneus and scutellum: from *mat*, Rossi, by the pilose elytra, the constricted thorax (which has the sides only pale in front), the sulcate scutellum, and the thighs without pale bands. Long. $2\frac{3}{4}$—3 lines.

Portsmouth (Moncreaff), also at Slapton.

I have had a bad example of this species in my collection for some time, but have not hitherto brought it forward, not feeling sure that it was the true *L. sulcatus;* but lately I have had an opportunity of seeing Dr. Fieber's type in M. Lethierry's collection, and am satisfied that our insect belongs to his species. It has been found by Mr. Moncreaff at Portsmouth, both in the developed form with the entire membrane, and also without. I have found the species not rarely on the Continent near Tours.

2, Spencer Park, Wandsworth:
December 1*st*, 1875.

Note on the habitat of Dicranoneura citrinella.—In September last I again found this species common in the gravel-pit at Blackheath, where I originally took it, and traced it without a doubt to *Teucrium scorodonia.*—J. W. Douglas, Lee: *December 6th*, 1875.

On the metamorphoses of Melöe cicatricosus and Cantharis vesicatoria.—M. Lichtenstein, in a letter dated 14th August, communicated to the Société entomologique de Belgique, says that he was unable to give the continuation of the history of *Melöe cicatricosus*, the larva having died in its second form without changing its skin (*vide ante* p. 136). But he goes on to say:—

"On the other hand I have had the pleasure, this morning, to obtain the second form of the larva of *Cantharis vesicatoria* by means almost the same as those employed with the *Melöe*. In this instance the "triungulins" were not yellow like those of *Melöe*, but black with a white cincture (the last two thoracic annulations, and the first ventral segment, are white). The second larva form is soft and white, hexapod, and very like that of *Melöe*."—[From the Compte-Rendu de la Société entomologique de Belgique, 2nd October, 1875].

"*Halesus digitatus.*"—In the months of September (end), October, and November (beginning), large Trichopterous insects of rather pallid (testaceous) colour, with somewhat striated anterior-wings, are not uncommon in the vicinity of streams in Britain, and even in the neighbourhood of London they may be seen on the gas-lamps. These have been commonly known by the name at the head of this note, and under this name they have been noticed by all the most modern writers on *Trichoptera* (including myself), without the least idea that more than one species was included under the term. This hallucination must come to an end. Having been recently engaged upon the genus *Halesus* for my "Revision and Synopsis of European Trichoptera," a somewhat disagreeable fact has forced itself upon me, viz., that *three* thoroughly distinct species are included under the name; and, moreover, that *two* of them occur in Britain, and are probably equally common. Which may be considered the real *digitatus* depends upon information to be received from Austria, for the name is one of Schrank's, in his "Enumeratio," and thus should naturally be reserved for the most common Austrian form. Any way it is satisfactory to know that (according to evidence furnished by types) no newly coined names will (apparently) be required. Reserving the application of the term *digitatus* for the moment:—

No. 1 is *radiatus*, (Leach) Curtis, = *digitatus*, Steph. (*partim*), = *interpunctatus*, Zett.

No. 2 is *tessellatus*, Rambur (according to type), = *digitatus*, Brauer (?), and Walser (according to type).

No. 3 is *hieroglyphicus*, Curtis, = *digitatus*, Steph. (*partim*).

Nos. 1 and 2 extremely resemble each other in general appearance, and are to be (apparently) separated only by the anal characters. In *radiatus* (which is possibly the true *digitatus*) the inferior appendages of the ♂ are blunt, black, and broadly sinuate at the apex: it is the most common northern species. In *tessellatus* the inferior appendages are long, somewhat lanceolate, slightly curved, acute; it appears to be Central European (not occurring in Britain). *Hieroglyphicus* is generally

larger than the others, paler (more testaceous) in colour, and with the wings longer and less obtuse; the inferior appendages broadly furcate. In Britain, this is probably equally common with No. 1, but is possibly less generally distributed.

It was gratifying to me to find that a new correspondent (Mr. F. G. Binnie, of Glasgow), who informed me that he worked only from books, had detected the differences in the two British species.—R. McLachlan, Lewisham: *4th December*, 1875.

Sphinx convolvuli in Berwickshire.—On the 15th August I netted a fine specimen of *Sphinx convolvuli* which was flying over some carnations in a garden. I observed another there about a week after, but only for two or three seconds, as it flew over a high wall and disappeared. Another specimen of this fine moth flew into a draper's shop in a village near there some time ago; it was sadly worn. On the sign-board of the same shop, one evening in September, an entomological friend of mine caught a most beautiful specimen of the same moth by putting a paper bag under it and pushing it in. That night, as I was walking with my friend down the street of a small town near the same place, we saw a crowd collected before a shop window, and soon found the cause of it. A large Death's Head Hawk Moth (*Acherontia Atropos*) had flown in, been caught by the shopman, and imprisoned in a glass bottle. My friend purchased it, and set it. Though slightly rubbed, still it forms an excellent specimen.—W. Sandison, 43, Govan Road, Glasgow.

European and exotic Lepidoptera.—Dr. Staudinger has sent me a packet of his priced Catalogues for distribution. I shall be happy to send one of these Catalogues to any entomologist who may wish for one. I may observe that it would seem to be much more sensible to buy a typical continental specimen of *Notodonta bicolora* for eight *pence*, than to give four or five *pounds* for an English specimen of more than doubtful authenticity; but I am aware that tastes differ on this point.—R. C. R. Jordan, 85, Harborne Road, Edgbaston, Birmingham: *December 8th*, 1875.

Entomological Society of London: *1st December*, 1875.—Sir S. S. Saunders, C.M.G., President, in the Chair.

T. Chapman, Esq., of Glasgow, was elected a Subscriber.

Mr. Forbes exhibited specimens of *Zygæna filipendulæ* in which the usual red spots and hind-wings were changed to yellow. He had bred these, although only one or two appeared among myriads of the ordinary form, and was quite sure that the variation was in every way natural, and not caused by extraneous circumstanc

Mr. Champion exhibited new or rare British species of *Anisotoma:* these were already noticed, with others, by Mr. Rye in the December number of the Ent. Mo. Mag.

Mr. W. Cole exhibited beautiful drawings of dipterous larvæ found on the shore at Southend; also the larvæ and perfect insects in spirits. They apparently pertained to the genus *Ephydra.*

The President remarked that M. Lichtenstein, of Montpellier, had recently obtained *Zonites præusta* and *Euchalcis vetusta* from *Osmia tridentata*, making thirteen parasites known to exist at the expense of that species (*cf. ante*, p. 71).

Dr. Burmeister, of Buenos Ayres, communicated a description of a new genus and species of *Scaritidæ*, under the generic name of *Obadius*, from the river Uruguay.

DESCRIPTIONS OF FIVE NEW, OR LITTLE KNOWN, SPECIES OF BRITISH *TENTHREDINIDÆ*.

BY P. CAMERON, JUN.

NEMATUS FLAVIPENNIS, *sp. n.*

N. niger, nitidus, breviusculus, crassiusculus; facie inferne, orbitis oculorum late, tegulis, pronoti angulis, ano, ventre pro parte, pedibusque rufo-flavis; alis flavescentibus. *Long.* 2¼—2⅓ *lin.*

♀. Antennæ longer than the thorax and abdomen, black, bare, almost shining; 3rd and 4th joints nearly equal; the remaining joints a little shorter, and tapering towards the apex. Head with frontal sutures very distinct, punctured in front, the part between the antennæ strongly projecting; black, the face (including the portion between the antennæ) and the eyes (especially behind) broadly surrounded with reddish-yellow; mandibles deep brown. Thorax black, shining; the pronotum edged with obscure yellow; cenchri large, white. Abdomen broad, dilated towards the middle, the apex bluntly pointed; the colour black, smooth and shining; the anus and ventral surface in the centre reddish-yellow. Cerci moderately long, pale yellow, their apices pointing inwardly; saw slightly projecting. Feet reddish-yellow; coxæ partly, and femora at base, more or less marked with black; the three last joints of posterior tarsi fuscous. Wings ample, strongly iridescent, yellowish; nervures, costa and stigma reddish-yellow; 2nd sub-marginal cellule nearly double the length of the 3rd, which is scarcely dilated at the apex; 2nd recurrent nervure received a little in front of the 2nd sub-marginal.

This species agrees very closely with the description of *N. brachynotus*, Fœrster, Verh. pr. Rheinl., 1854, p. 295, pl. 5, fig. 13, but must be different, as that species is considerably larger, has brownish tarsi, shorter antennæ, "ein wenig kurzer, namentlich als der Hinterleib," and in the rather long description no mention is made of the wings being yellowish. Of the British species it has the greatest resemblance to *N. Zetterstedti*, Dbm., = *miniatus*, Htg., but it is also larger, and has the belly completely red, with the posterior tarsi black.

One specimen, taken in June at Rannoch, and two at Kingussie; in both places by sweeping in marshy ground.

NEMATUS BACCARUM, *sp. n.*

Niger, subnitidus, ore, pronoti limbo, tegulis, costa, stigmate, pedibusque albidis; ano testaceo; alis hyalinis. *Long. fere* 1½ *lin.*

♀. Antennæ shorter than the body, comparatively thick, tapering towards the apex; the colour black, obscure brown at apex; the 3rd and 4th joints about equal; the last joint thinner, and apparently a little longer than the 8th. Head black, shining, the vertex finely punctured; the labrum and clypeus partly white; mandibles blackish; on the lower side there is a broad pale ring surrounding the eyes. Thorax black, shining; mesonotum finely punctured; pronotum thinly edged with

white; tegulæ white. Abdomen obscure black, the anal segment above, and the ventral surface, more or less pale testaceous; cerci white, projecting outwardly; sheaths of the saw projecting, hairy. Feet white; coxæ black at base; femora, at base, obscured with fuscous; posterior tarsi longer than the tibiæ, and very faintly fuscous. Wings hyaline; costa and stigma white; nervures pale; 3rd sub-marginal cellule dilated at apex; 2nd recurrent nervure received about the length of a fourth of the size of the 2nd sub-marginal cellule in front of the 2nd sub-marginal nervure.

This species belongs to a very obscure group of saw-flies; and if I did not know its early stages, I would not have undertaken its description. It comes nearest to the descriptions of *N. helicinus* and *N. crassipes*, Thoms., from both of which its much smaller size, and white legs and stigma, well serve to distinguish it; and the 2nd recurrent nervure being placed at some distance in front of the 2nd sub-marginal, affords another good mark of separation.

I bred it from a berry-shaped gall of a greyish-green colour, covered closely with fine white hairs, which Dr. White sent me from the neighbourhood of Dunkeld, where it was found by him on the leaves of a willow—what species I do not know; but the leaves were not unlike those of *Salix aurita*. The larva was white, with the head obscure fuscous; eye-spots black; mouth brown; and the segments projected considerably. Previous to pupation, I noticed that the end of the body was rather sharply pointed; the colour was dirty white. They fed up to the end of October, when their cocoons were spun, attached to the bottom of the breeding jar. They did not make a hole for the expulsion of the frass, which is very fine and powdery. Neither did they, previous to spinning, become of a slate colour—thus differing from the larvæ of *helicinus*.

The pupa is white. The imago made its appearance on the 1st May, about two weeks after becoming a pupa.

Nematus crassipes, Thoms., var. vacciniellus, Cam.

♀. Antennæ shorter than the body, black, stout, very slightly tapering towards the apex; 3rd and 4th joints equal. Head black, finely punctured on the vertex; sutures distinct; mouth and eyes (especially behind) surrounded with pale testaceous; mandibles brown. Thorax black, shining; tegulæ white; pronotum broadly edged with white; parapsides shining, in certain lights seen to be covered with a fine down; cenchri pale white. Abdomen black; apex mucronate; cerci moderately long, white; anal segment pilose; above, and the last three segments at the sides, and underneath, dirty testaceous. Feet whitish-testaceous, covered with whitish down; posterior tarsi shorter than the tibiæ; last tarsal joints fuscous. Wings hyaline; costa and stigma white; nervures pale fuscous; the 2nd recurrent nervure nearly joined to the 2nd sub-marginal. The femora have a fuscous tinge in the middle. Length, 2 lines.

The ♂ has the antennæ longer than in the ♀, and also pilose; the coxæ and

femora for the greater part black; posterior tarsi black; and the abdomen above is brownish at the junction of the segments. The head is quite black, with the mouth obscure testaceous.

This insect was bred by Mr. C. Healy (to whom I am indebted for specimens) from galls on *Vaccinium vitis-idæa*, found by Mr. Eedle in Scotland; and has been referred by Mr. Newman to his *Euura gallæ*. Mr. Newman, of course, ought to be well acquainted with his own species; but, so far as his description goes, it is not detailed enough to enable this, or indeed any species, to be identified with it, at least with any certainty; and it therefore must be entirely ignored. It agrees tolerably well with Thomson's description of *crassipes*, except that his species has not the eyes surrounded with luteous, and no mention is made of the pronotum being white. *Crassipes* was split off by Thomsom from the *N. helicinus* of Brischke; and he quotes Brischke's account of the gall-making habits of his species for *crassipes*, and not for *helicinus*, although that is also described. If *crassipes* has actually been bred from willow-galls on *Salix helix*, then I think it highly probable that the Scotch insect is distinct; but, in the absence of types, and of definite information regarding the early stages of *crassipes*, I think it safest in the meantime to consider it as a variety only. Should it ultimately prove to be distinct, I propose the name of *vacciniellus* for it.

I may add that neither Thomson's description of *helicinus* nor of *crassipes* agrees with a specimen of *helicinus* = *vesicator*, Bremi, which I received from Herr Brischke.

Nematus Sharpi, *sp. n.*

N. niger, nitidus, antennis subtus et orbitis oculorum rufescentibus; ore, pronoti, stigmateque albidis, pedibus rufo-testaceis, alis hyalinis.

Long. 2¼ *lin.*

♀. Antennæ about the length of the body, black, underneath reddish, especially at the apex, where they taper considerably; the 3rd and 4th joints equal. Head with the vertex finely punctured, black, slightly surrounded with reddish-brown, as well as a spot between the antennæ; mouth, including half the clypeus, whitish; clypeus moderately arched; mandibles brownish. Thorax black, pronotum broadly white, mesonotum slightly punctured, covered with a short whitish down, seen only sideways; parapsides covered also with down; cenchri small. Abdomen short and broad, about the size of the head and thorax, apical half abruptly pointed; apex faintly pale, hairy; cerci long, pale whitish, pointing outwardly; saw exserted. Feet reddish-testaceous, coxæ and trochanters paler, posterior tarsi a little shorter than the tibiæ. Wings clear hyaline, costa and stigma whitish, the latter with a faint border of brown on the under-side; nervures pale, 2nd recurrent received considerably in front of the 2nd sub-marginal.

In the structure of the wings and antennæ, *N. Sharpi* resembles *N. appendiculatus*, Htg., but it is easily known from it by the shorter body, more abruptly pointed abdomen, half white clypeus, and eyes surrounded with red. In form, it is not unlike *N. flavipennis*, but the eyes are only slightly surrounded with brown, the wings are clear hyaline, with the stigma white, and there is no black on the femora.

Taken by Dr. David Sharp, probably in Scotland, the exact locality I do not know.

ERIOCAMPA ÆTHIOPS.

In the Entomologist's Annual for 1862, and previously in the Gardener's Chronicle for 1848, Prof. Westwood describes the transformations of a saw-fly which he calls *Selandria æthiops*, Fab. Until the present year this rose-feeding species was an enigma to me, and no doubt also to others; but in August, Mr. J. E. Fletcher of Worcester very kindly sent me both the imagos and larvæ, and on consulting the above mentioned works I had no difficulty in identifying them with Westwood's insect. I am not, however, equally sure that it is the true *æthiops*, for, although it agrees with the description so far as it goes, yet so do also other species of *Selandria* (*sensu lat.*), as well as another species I have of *Eriocampa*. In this state of matters, my first intention was to regard it as a new species, but I have thought it perhaps better for the present to treat it as the *æthiops* of Fabricius. Fabricius described his species from an English insect in the Banksian cabinet, but unfortunately it is not now there, as Mr. F. Smith informs me, the type having been either lost or destroyed. Mr. Smith also tells me that there is an *Eriocampa* in Stephens' collection bearing the MS. name of *consorta*, which is very like, if not actually identical with, the present insect. The rose insect is a true *Eriocampa*, and to avoid any more confusion, I now recharacterize it, and I can only express a hope that there will be no further ambiguity about it:—

ERIOCAMPA ÆTHIOPS, Fabricius.

E. nigra, nitida, genubus, tibiis, tarsisque 4-anticis albidis; alis sub-fumatis. *Long.* 1¾–2 *lin.*

It belongs to the section comprising *cinxia*, Klug, *atratula* (Dbm.), Thoms., and *testaceipes*, Cam. *Cinxia* has all the tibiæ white at the base, while in *æthiops* the four anterior tibiæ along with the tarsi are white, and the posterior black, except that the knees are a little paler; *testaceipes* is easily known from it by its testaceous hinder tibiæ and

tarsi. *Atratula* I do not know; but, as it is described as having only the anterior tibiæ luteous, it can scarcely be confounded with our insect. The wings in *æthiops* are darker at the base, and do not differ essentially from those of *testaceipes*: in *cinxia* the wings are darker in the middle. It is unnecessary to distinguish it from *E. annulipes*, *varipes*, and *adumbrata*, as they are readily known by having two middle cellules in the posterior wings, while in the present species and its allies there is only one cellule.

In the same papers, Prof. Westwood states that *E. æthiops* is distinct from the *æthiops* of Klug and Hartig, which is a *Blennocampa*, and he further mentions that the slimy larvæ of the pear (commonly called in England "*Selandria cerasi*," notwithstanding that the *cerasi* of Linné has luteous legs) pertain to the *Selandria atra* of Stephens. I do not mean to question the accuracy of this observation, and it is likely enough that *atra* is really attached to the pear; but my own observations (agreeing with those of continental observers) undoubtedly lead me to conclude that *the* common garden pest is, in point of fact, the *Eriocampa adumbrata* of Klug. According to Thomson (Hymen. Scand., i, 213), the *æthiops* of Klug is a variety of *Blennocampa ephippium*, Pz., with the pronotum black; and I believe he is quite correct. Until I see Stephens' types of *atra*, I can say nothing definite regarding it. I recommend the careful breeding of the slimy larvæ of the pear and plum trees to those who may have the opportunity of doing so, and thus settle once and for all the question whether they belong to species other than *Eriocampa adumbrata*, and if so, to ascertain how the larvæ of the different species may be distinguished from one another.

To Professor Westwood's account of the habits of *æthiops*, I can add nothing, beyond confirming it; but I may mention that Mr. Fletcher's larvæ remained eighteen months and mine two years in the cocoons before changing.

I have bred *E. annulipes* from slimy larvæ on *Salix viminalis*, and Mr. Fletcher bred *E. varipes* from like larvæ on the oak. We have thus in *Eriocampa* three different kinds of larvæ, namely: slimy larvæ like those of *adumbrata*, the yellowish-green slimeless larva of *æthiops*, and the white flaky larva of *ovata*.

Hartig's system of genera and sub-genera is apt to lead to great confusion, and I hope that for the future his named sections will be regarded as distinct genera, more especially as they can all be easily made out.

Glasgow: *November*, 1875.

DESCRIPTIONS OF TWO NEW BRITISH *ICHNEUMONIDÆ*.

BY THE REV. T. A. MARSHALL, M.A., F.L.S.

Mr. Cameron has requested me to describe the following insects, which I some time ago returned to him as new species.

LIMNERIA CROCEIPES, *n. sp.*

L. parum nitida, alutacea, subtiliter sericea, nigra; antennarum scapo subtus rufescente; ore, mandibulis, palpis, alarum radice, squamulis pedibusque læte flavis; coxis anterioribus basi rufescentibus, femoribus anterioribus fulvo tinctis; coxis femoribusque posticis nigris; tibiis posticis apice fusco-rufis; alis sub-hyalinis, stigmate et nervis fuscis, his basin versus flavidis; terebra breviter exserta.

♀. *Long.* 2¾ *lin.*

Caput transversum, pone oculos angustatum. Oculi juxta antennarum insertionem levissime tantum emarginati. Antennæ apice mutilatæ. Thorax capite angustior, sat robustus, lateribus parce albido-sericeus, alutaceus; metathorace ruguloso, medio haud excavato, areis duabus superioribus lateralibus tantum distinctis. Abdomen apice modice compressum, segmento 1^mo *pedum posticorum coxis cum trochanteribus longitudine subæquali; postpetiolo transverso, parum convexo; segmento* 2^do *haud longiore quam latiore, gastrocœlis pellucidis; terebra sursum curvata, testacea, abdomine haud altiore. Alæ areola nulla; nervo radiali externo recto; transverso anali haud fracto. Unguiculi non pectinati.*

From Cadder Wilderness.

It belongs to Holmgren's Sec. II, Div. 1, Sub-div. 2. As this group is of very limited extent, and immediately recognisable by the want of the areolet, there is little difficulty in determining this species to be new.

BASSUS PERONATUS, *n. sp.*

B. nitidulus, punctulatus, metathoracis area superomedia elevata, acute marginata; abdominis segmento 1^mo *lato, antice depresso, parum angustato, carinulis paulo ultra medium extensis; alarum nervo transverso anali longe infra medium fracto; niger, alarum squamulis albidis; pectore pedibusque fulvo-rufis; femoribus posticis fuscis; tibiis posticis (basi exempta), tarsisque posticis, nigris; scutello testaceo, fusco trimaculato.* ♀. *Long.* 2½ *lin.*

Caput transversum, thorace latius; facies deplanata, canalicula media nulla, tota nigra. Antennæ corpori longitudine æquales, nigro-fuscæ, subtus testaceæ. Thorax nitidus, angustior quam apud B. pectoratorium; *scutellum elevatum, testaceum, elevatione media maculisque duabus lateralibus elongatis fuscis; pleuræ nigræ; metathorax rugosus, areis circiter quatuor distinctis. Abdomen capite cum thorace haud*

longius, parum nitidum, segmento 1^mo *cæteris omnino simili; segmentis omnibus postice exalbido subtiliter marginatæ. Pedes postici incrassati.*

This species, having no transverse impressions on the anterior abdominal segments, no areolet of the wings, and the metathorax distinctly areated, is to be referred to Holmgren's Sect. II, A, a, *a*. It can only be confounded with *B. pectoratorius*, Gr., but differs in having the pleuræ black, the metathorax areated, &c. The name *peronatus* is meant to express the booted appearance of the hind legs. Bred by Mr. Cameron from the larvæ of *Nematus cadderensis*; see p. 127 of this volume.

Among the insects sent to me by this acute and indefatigable investigator of the economy of saw-flies, it is worthy of remark that two specimens of *Eumesius crassicornis*, Gr. (♂ ♀), occur, a rarity unnoticed here, I believe, since the time of Curtis.

An external parasite on the larvæ of *Nematus viminalis*, L., which Mr. Cameron sends for identification, is *Ichneutes reunitor*, Nees, *var. brevis*, Wesm. The specimens before me are only one-third of the size of the typical *reunitor*, with darker legs and palpi, the metathorax with one elongate sub-triangular area, the radial nerve straight, and the smooth space on the pleuræ rather larger. Notwithstanding these differences, Wesmael was of opinion that his *brevis* was not specifically distinct from the *reunitor* of Nees (see Nouv. Mém. Ac. Brux., 1838, p. 156). I suspect that this opinion is erroneous, but further observations alone can settle the question. Mr. Cameron informs me that he has reared the typical *reunitor* from the larvæ of *Cladius padi*, L. It is noteworthy, as to the distribution of these parasites, that specimens of the var. *brevis*, Wesm., were brought from Wide Bay, Spitzbergen, by the Rev. A. E. Eaton.

Lastingham, Pickering:
December 15th, 1875.

NOTES ON SOME BRITISH *DOLICHOPODIDÆ*, WITH DESCRIPTIONS OF NEW SPECIES.

BY G. H. VERRALL.

(continued from page 148.)

PORPHYROPS SIMPLEX, *sp. n.*

♂ ♀. *Æneus, nitidus, facie albidâ; alulis flavido-albidis, albido-ciliatis; pedibus flavidis, coxis nigris, femoribus anterioribus aut nigris* (♂), *aut obscuris* (♀) *apice flavidis, posticis apice nigris* (♂) *aut obscuris* (♀), *tibiis modice setigeris; alis cinereo-hyalinis.* *Long.* 2 *lin.*

♂. *Facie angustissimâ, albidâ, fronte cæruleo-viridi, palpis nigro-setosis, barbâ albidâ; tarsis anticis subsimplicibus, articulo basali vix apice incrassato et vix curvato, articulis tribus proximis longitudine subæquali; hypopygii lamellis elongatis.*

♀. *Cupreo, facie fronteque albidis; coxis anticis flavidis, basi cinereis, tibiis posticis apice obscuris.*

♂. A rather small species, slightly smaller than *P. consobrinus*, Zett.; arista nearly twice as long as the third joint of the antennæ, the latter being about three times longer than broad; eyes conspicuously hairy, with brownish-yellow hairs; face extremely narrow, almost touching in the middle, white just above and below that point; frons shining blue-green, with a whitish sheen; palpi small, concealed, but the rigid black bristles at their tips conspicuous; beard whitish, the single cilia round the upper part of the eyes black. Thorax shining green, scutellum a little bluish, breast-sides slightly silvery; abdomen duller green, with a slight silvery sheen, most conspicuous on the third, fourth, and fifth segments, the bristly pubescence rather dense, black, the hairs about the basal corners white; appendages long strap-shaped, slightly bristly; alulæ dull whitish-yellow, with white fringes, halteres whitish-yellow. Legs yellow, coxæ black, front pair clothed with black bristles, anterior femora black, yellow at the tip, hind pair black at the tip, and for nearly half their length on the upper side, front femora rather bristly, especially on the basal half beneath, front tibiæ bearing several bristles outside, just above and about the middle, basal joint of tarsi nearly as long as the next three joints, a little bent, slightly thickest and most bristly about the middle, and with very minute erect hairs beneath, the second joint very slightly bent, and all the joints gradually diminishing in length; middle coxæ with a tuft of black bristles at the end almost like a spine, middle femora rather pubescent, with two or three bristles near the tip, tibiæ bearing about three pairs of large black bristles on the upper half outside, about which the small bristles are absent, inside below the middle is, as usual, one bristle, basal joint of tarsi as long as, or slightly longer than the next two, all yellowish except the last; hind femora with one small bristle near the tip, tibiæ with one bristle outside about one-eighth the length from the base, and two or three others just about the middle not very conspicuous, just below which is a small denuded space, apex with two bristles outside, tarsi black, second joint longer than the first, third slightly shorter than first, fourth and fifth together slightly longer than third. Wings brownish-hyaline, discoidal vein distinctly bent and approximating, but parallel towards end.

♀. Coppery, sides whitish, face and frons white, the latter with a greenish ground colour, face rather narrow, sides nearly parallel, palpi whitish, with a few black bristles; legs yellow, coxæ blackish-grey, front pair yellowish with the base grey, bearing three black bristles at the tip, and a yellow one above, front femora dusky above, middle femora with one or two long black bristles near the tip, bristles on the anterior tibiæ almost as in the male, hind femora dusky above at the tip, hind tibiæ rather more bristly than in the male, slightly darkened at the tip.

Of the British species of *Porphyrops, pectinatus* is distinguished by its black face and beard, stronger and more regular pubescence on

the front femora, &c., and *consobrinus* by the pale hairs behind the front femora, and its entirely black hind femora, while both have different front tarsi; *fascipes* and *spinicoxus* have a black face and beard; *crassipes* has dilated middle tarsi; *antennatus* has a capitate arista; *elegantulus* is larger, with yellow anterior femora and blue tip to the abdomen; *nemorum* is smaller, with longer antennæ, black hind legs and more bristly front tibiæ; *gravipes* has black hind legs, and the following species, *tenuis*, has white-haired coxæ and femora, and yellow middle femora, while I think the diagnosis will distinguish it from any recognized continental species.

I caught one male and two females near Box Hill some years ago on September 5th; I think they were found on some stones on a flattish bank running out into the river Mole, near Burford Bridge.

P. TENUIS, *n. sp.*

♂. Cupreo-æneus, angustus, facie candidâ, subangustâ, barbâ albâ; alulis albo-ciliatis; pedibus luteis, coxis nigris, albo-pilosis, femoribus anticis nigris, albo-pilosis, posticis apice nigris, unispinosis, tibiis modice setigeris, posticis nigris, tarsis anticis subsimplicibus, articulo basali apice vix incrassato, articulis reliquis longitudine subæquali; hypopygii lamellis latis; alis brunnescentibus. *Long.* 2½ *lin.*

Long, narrow, dark coppery-æneous; antennæ moderate, third joint about two and a half times longer than broad, second joint with a long bristle above, arista more than twice the length of the third joint, its own basal joint being also somewhat conspicuous; face narrow, silvery-white, sides almost parallel, frons greenish with a whitish gloss; eyes densely hairy with a tawny pubescence, palpi brownish with yellowish hairs; beard shaggy, white. Thorax coppery-æneous, with two indistinct dark longitudinal lines; alulæ dirty yellowish, fringe long, white; abdomen long, narrow, coppery-æneous, becoming purplish on the fourth and fifth segments and greenish on the sixth, the base of each segment darkened, bristles on the disc black, but about the base and along the sides clothed with white hairs; lamellæ dirty brownish-yellow, hairy, broad, not short, somewhat truncate and ragged at the end, the lower corner with a produced point, and the upper corner pointed. Legs chiefly luteous, coxæ all blackish, front pair densely white-haired in front, hinder pairs white-haired, with a few black bristles at their tips, front femora blackish with a tolerably abundant, somewhat conspicuous, white pubescence behind, front tibiæ yellowish, with several bristles in front on the basal half, tarsi dull yellowish, darker towards the tip, basal joint nearly equal in length to the next four, slightly swollen at the tip beneath, middle legs luteous, thin, femora with the tip obscure above, and with a slight whitish pubescence beneath near the base, and about two somewhat inconspicuous black bristles near the tip, tibiæ bristly down the outside, tarsi darkening towards the tip, hind femora luteous, with the apical third black, especially above, one bristle near the tip, and a faint white pubescence beneath near the base, tibiæ black, slightly brownish down the outside, rather bristly, tarsi blackish, two basal joints about equal in length. Wings dark brownish, especially near the costa.

The luteous hind femora with black tips, the white face and beard, the blackish front femora and white-haired coxæ and femora, seem to distinguish this from any British *Porphyrops*, and I believe from any recognized European species. I caught two males at Rannoch, in 1870.

DIAPHORUS DORSALIS, *n. sp.*

♂ ♀. *Minutus, nigro-viridis, antennis, pedibus halteribusque nigris; fronte latâ, facie oris aperturam versus angustatâ, obscure viridi; antennis brevibus, articulo tertio lato, setâ dorsali; pedibus pubescentibus; alis nigricantibus.* *Long. vix.* 1 *lin.*

Small, dark green; frons broad, occupying more than one-third the width of the head, dull green, rendered lightish by the pale tomentum; face of the same colour, narrowing steadily towards the mouth, being there only about a quarter the width of the vertex, the space between the eyes, therefore, from the vertex to the mouth forming a blunt-ended triangle; antennæ short, the third joint being about three times broader than long (similar to that of *Chrysotus læsus*), the minutely but densely pubescent arista arises from about the end of the upper fourth, thus appearing distinctly dorsal; palpi dark brown. Thorax and scutellum green, rendered dull by tomentum, the bristles all black. Abdomen green, somewhat shining, with black bristles, and the usual long bristles at the tip on the hypopygium. Legs black, with abundant small black bristles, and scattered longer bristles, the pulvilli whitish-yellow, considerably elongated on the front pair, less so on the hindmost pair. Alulæ with blackish edge and cilia, halteres black. Wings with a strong blackish hue and black veins, the discoidal runs parallel to the cubital, or even diverges slightly from it at the tip, and bears no signs of any flexure; the lower cross-vein is about two and a half times its own length from the end of the postical vein.

♀. Face and frons almost of equal width all the way down, only slightly narrowing towards the mouth, face dull green with a faint whitish tomentum, aristâ still more evidently dorsal. One specimen has the hind tibiæ and tarsi brownish.

As each new species is discovered and described, the boundaries between the genera *Diaphorus* and *Chrysotus* seem to grow fainter. *Diaphorus melancholicus*, Lw., described in 1869, is the nearest ally to *D. dorsalis*, but seems to have the antennæ with a smaller roundish third joint, and a more blackish-green abdomen, besides being described as one line long, while *D. dorsalis* is distinctly less than that. The only characters I can detect separating *D. dorsalis* from the genus *Chrysotus* are the elongated pulvilli of the male, and the more distinct bristles on the hypopygium; I see no character to separate the females.

One ♂ and two ♀ at Woking, on August 1st, 1875, near the banks of the canal.

(To be continued).

ON A NEW GENUS AND SPECIES OF THE FAMILY *STAPHYLINIDÆ*.

BY D. SHARP, M.B.

The enormous mass of minute *Staphylinidæ*, named collectively *Aleocharini*, consists of many hundred described (and probably nearly as many thousand undescribed) species, and forms one of the most specialized portions of the *Staphylinidæ*; by this, I mean a portion in which the points of structure distinctive of the family are most developed. The group of the *Staphylinidæ* called *Tachyporini* has been generally placed next to the *Aleocharini*; it is, however, much less developed or specialised than the *Aleocharini*, and its place is likely still to give rise to much discussion. I am myself disposed to guess that the *Aleocharini* are likely to prove a group which must be subjected to much decomposition or analysis before it can be properly dealt with, and that some portions of it will be found to be directly connected with (or descended from) the *Oxytelini*, and others from the *Tachyporini*. The insect I here describe is of considerable importance as throwing some light on this point.

The most decided characters by which the *Aleocharini* and *Tachyporini* are distinguished, are the structure of the elytra, and the insertion of the antennæ. In the *Tachyporini*, the elytra are furnished with a well marked and abruptly distinguished pleural portion; while in the *Aleocharini* this pleural portion is not to be found. The stages of its disappearance can be, it seems to me, clearly traced, for we have only to examine a selected series of *Tachyporini* to find this pleura becoming more and more inflexed, till, in *Hypocyptus* and *Vatesus*, we find it entirely and closely applied to the inner face of the body of the elytron; it has, in fact, become completely doubled in or folded down. M. Pandellé has already pointed out that this is the metamorphosis by which the difference in the elytron of *Hypocyptus* from other *Tachyporini* may be understood, and the *Vatesus latitans* seems to demonstrate this completely; for, while in *Hypocyptus* the outer line or boundary of the pleura has entirely disappeared, and only the inner one can be detected, in *Vatesus*, on the other hand, both lines exist. The disappearance of the inner line (which is the only one existing in *Hypocyptus*) would completely transform such an elytron into that of the *Aleocharini*.

As regards the second point by which the *Aleocharini* and *Tachyporini* are distinguished, viz., the insertion of the antennæ, *Vatesus* seems to occupy a peculiarly interesting position between the two

groups: in it, the head has undergone a peculiar change, by which the front half is bent down at right angles to the posterior half; now, if this bent-down front portion be supposed to be bent up so as to restore it to its natural plane, it will be seen that the point of insertion of the antennæ is that of the *Aleocharini*, or, perhaps I should rather say, of an ultra Aleocharineous Aleocharinid, for the point of insertion would then be correctly described as at the inner margin of the eye, but rather nearer to the back than to the front of the eye: if, on the other hand, we suppose this peculiar deflexed front portion of the head of *Vatesus*, together with the corresponding portion of the eye, to be greatly reduced in size, it is at once seen that the form of the head and the insertion of the antennæ would be exactly that of the ordinary *Tachyporini*.

I consider, then, that the *Vatesus latitans* here described cannot be correctly classed with either the *Aleocharini* or *Tachyporini*, but should be considered apart as a connecting link between the two. I may remark also that this insect appears to have some points of relation with certain peculiar *Quediini*; but this I have not fully investigated, and only mention it as rendering still more probable the hypothesis that *Vatesus* is in many respects a very primitive form or synthetic type.

On one other point, I will venture to offer a suggestion. When this insect is carefully examined, it is seen that its points of structure are such as to unfit it for much activity, but to afford it great protection in complete quiescence; thus the segments of the hind body are completely retractile, and when so retracted, leave scarcely any portion of this part exposed, except the ventral plate of the basal segment, and this is protected by peculiar rigid spines. The extremely small head is capable of being completely inflexed, and the sensitive front parts of it are then completely protected by the huge front coxæ; and I believe that the peculiar change of form of the front parts of the upper surface of the head will, on careful examination, be found to be merely a perfecting of this applicability. The legs are so formed that their parts are beautifully adapted to one another when flexed or contracted, the articulations being then completely protected, while the large flat femora completely cover and protect the breast. We can imagine, then, a small parasite seeking in vain to find a chink by which to gain access to the soft and nutritious parts of our *Vatesus*. Now, I am strongly inclined to consider that in a great many *Coleoptera*, and probably in other insects, it will be found that a vast number of

points of structure are directly related to the preservation of the creature from small parasites. We have here an extensive field in which "natural selection" may be suppose to operate in the most direct manner. Finally, I would add, that I think it will very likely be found that insects which are greatly modified for a very protected or quiescent life of this sort, are remarkably often primitive forms. The most beautiful instance of complete protection of the sort with which I am myself acquainted, is to be found in the "kugelförmige," or rolling-up, *Trogidæ*.

VATESUS, *n. gen.*

Head extremely small in proportion to the prothorax, its vertical part forming a plane at right angles to the plane of the clypeal portion, so that when the head is extended, the vertical plane is horizontal and the clypeal one perpendicular; this perpendicular portion is to a great extent occupied by two large depressions in which are the cavities for the insertion of the antennæ; the space separating these two large cavities is somewhat prolonged in front, is transversely convex, and to its front margin is attached the large labrum: the eyes are very peculiar in form; when looked at from the front, each eye appears as a perpendicular external wall to the large antennal cavity, while, seen from the side, each eye presents a considerable superficies looking outwards; when looked at from the front, it is seen that the round articular cavity for the insertion of the antenna is nearer to the top than to the inferior boundary of the perpendicular portion of the eye.

Maxillary palpi elongate, first joint short, second curved and elongate, third slightly longer than second and scarcely more slender than it, fourth elongate and slender, but considerable shorter than third, and scarcely half so stout as it, quite acuminate. Pronotum forming a very convex surface, the hind margin of which is sinuate on each side, the hind angles greatly rounded, the sides finely margined, curved, and extremely narrowed towards the front; the front margin is very small in proportion to the others, and forms an arch for the accommodation of the head, the front angles being extremely obtuse.

Looking at the under-surface, the sides of the pronotum extend greatly beyond the prosternum, so that the front legs, when contracted, are entirely concealed; the prosternum is but a narrow band, placed quite in front of the coxæ, and leaving them completely exposed; the coxæ are very large and inflated, and the head can be deflexed, and applied closely to the small portion of the thorax that is in front of and between them: the front femora are short, broad, and plate-like, their lower edge being deeply channelled for the reception of the tibiæ, the channel extending to the point of the trochanter; the front tibiæ are short, compressed, and are rather attenuate towards the apex, their hinder face is armed with stout spines, and their apex possesses several long spines, which greatly conceal the upper face of the front tarsi; these are five-jointed, and in the male are rather broad, but the basal joints can scarcely be said to be dilated, as they are not much broader than the terminal joint, they are clothed beneath with long hairs, the fifth joint is broad and longer than the two preceding ones together. The mesosternum forms a transverse band,

which sends forward in the middle an elongate, extremely slender process between the middle coxæ to meet the metasternum. Middle coxæ very large. Metasternum greatly reduced, not so large as the hind coxæ. Hind coxæ very large (similar in structure to what obtains in the convex South American species of *Coproporus*, e. g., *C. obesus*, Sharp). Middle femora broad and laminar, their hinder edge deeply channelled for the reception of the tibiæ: these are stout, rather attenuate towards the extremity, strongly spinulose; the tarsi are broad, and appear like a continuation of the tibiæ, the basal joint is particularly large, and is as long as the three following together, the fifth joint is stout and flat. Hind femora, tibiæ, and tarsi, much resembling the middle ones, but more slender and rather more elongate. Elytra (seen from above) very arched transversely, the humeral angles greatly rounded, the upper superficies bounded by a fine line which extends from the hinder outer angle to near the large scutellum; the hinder external angle is a little produced, so as to be acute, their suture is fine and accurately fitted, and is without stria. Seen from beneath, the external portions of the elytra project greatly as a broad free border beyond the sternum, this border is marked off by a very distinct raised line, which exists on the inner face of the elytron, and accurately adapts itself to the side margins of the sternum. Hind-body broad and short, much attenuated towards the extremity, the sides distinctly margined, the segments capable of being almost entirely retracted within one another: its structure very similar to that of the convex *Copropori*, this being the case also with the œdeagus and its sheathing segment. The antennæ are not described, because only the two basal joints exist, these are rather short, the basal joint being rather thick in proportion to its length.

Vatesus latitans, *n. sp.*

Transversim perconvexus, capite thorace elytrisque nigris, nitidis, fere lævigatis; abdomine piceo, fere opaco, crebre punctato, densius subtiliter pubescente.

Long. corp. extens. 8½ *mm.*

Head about 1 mm. broad, black, impunctate. Thorax about 3½ mm., broad, and about 2 in length, with a few very indistinct punctures scattered over its surface. Scutellum impunctate. Elytra about as long as the thorax, impunctate, moderately shining, their hind margin pitchy. Hind-body pitchy, with the hind-margins of the segments and the apex paler; the segments above finely, very evenly and rather closely punctured, and clothed with a very short and even yellow pubescence: the under surface similar to the upper, except that it has the basal segment coarsely punctured, and its pubescence is developed into coarse spines. Legs pitchy. In the male, the dorsal plate of the 7th segment of the hind body ends in four obtuse teeth, the ventral plate has a broad and rather deep sub-angular notch at the apex; the hind margin of the ventral plate of the preceding segment is a little trisinuate, and it is slightly depressed along the middle, and its pubescence arranged so as to give it an obsolete grooved appearance.

Female unknown.

Parana, South America; a single mutilated male specimen.

Thornhill, Dumfries:

November 23rd, 1875.

BRITISH *HEMIPTERA-HOMOPTERA*—ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

TYPHLOCYBIDÆ.

DICRANONEURA PYGMÆA, *n. sp.*

♂. Orange-yellow. *Head* short, obtusely angular, sides rounded. *Eyes* black, not prominent. *Pronotum* broad, about a fifth longer than the head, anteriorly much and roundly produced, posterior margin scarcely emarginate. *Scutellum* with a distinct black spot at the apex. *Elytra—corium* and *clavus* inwardly paler orange than on their outer sides, nerves deeper orange, the inner margin of the clavus with a fuscous line: *membrane* with a slightly fuscous tinge, nerves pale orange; 1st cell short, angular, slightly prolonged posteriorly beyond the base of the 2nd and 3rd, which are of sub-equal length; 3rd cell (between the 2nd and 3rd straight nerves) narrower than the others; 4th cell with its oblique base extending further back than either of the others. *Wings* diaphanous, slightly infuscated, iridescent; longitudinal nerves infuscated. *Legs* orange; claws of the tarsi infuscated. *Abdomen* black above; *genitalia* orange. Length, 1⅓ line.

A single male taken casually at Darenth Wood, on the 7th October last.

In size, this comes nearest to *Notus minimus*, J. Sahlb. (which I know only by description), yet it appeared to differ so much from this and all other species with which I am acquainted, that I thought it best before describing it to submit it to Dr. Sahlberg, who thus writes concerning it:—"A species unknown to me. It is to be distinguished "from *N. minimus* by the form of the head, the eyes less prominent "posteriorly, the broader pronotum with its posterior margin scarcely "emarginate, and the form of the genitalia, as well as by the different "colour."

TYPHLOCYBA CRATÆGI, *n. sp.*

Pale whitish-yellow. *Head* obtusely pointed, the sides rounded. *Pronotum* scarcely one-fourth longer than the head, posterior margin slightly concave. *Scutellum*, like the head and pronotum, spotless. *Elytra* shining, pale yellowish with a greenish tinge, the lower margin of the *clavus* throughout narrowly and regularly pale fuscous-brown; *membrane* pale fuscous, with somewhat indistinct yellowish nerves; at the base of the cells on the corium a transverse row of more or less distinct fuscous spots. *Wings* diaphanous, iridescent, nerves pale. *Legs* pale, claws of the tarsi fuscous. *Abdomen* whitish-yellow. Length, 1½ line.

Allied to *T. gratiosa*, Boh., but smaller, elytra yellower, narrower, the fuscous stripe on the outer margin of the clavus not so broad and of uniform width, and the spots on the corium next the membrane rounder and less distinct. The species is unknown to Dr. J. Sahlberg and M. Lethierry.

Taken on whitethorn (*Cratægus oxyacantha*) at Lee, Dartford, and Addington Hills, from the end of June to the end of October. I once found it on apple trees.

Typhlocyba debilis, *n. sp.*

♀. Pale yellowish-white. *Head* very obtusely produced, sides rounded, frons with two large, round, black spots. *Pronotum* with a small black dot in front close to the head, posterior margin scarcely concave. *Scutellum* concolorous with the head and pronotum, the apex with a conspicuous shining black spot. *Elytra* pale yellowish-white, with a delicate greenish flush, gradually deeper from the middle of the corium to the outer margin of the clavus; *membrane* pale fuscous, with indistinct pale yellowish nerves, generally the apex, and anterior and inferior margins each, with a dark fuscous, inwardly directed, elongated spot; on the corium, at the base of the apical cells, a transverse row of fuscous spots. *Wings* diaphanous, longitudinal nerves yellowish, fuscous at the extremity. *Legs* pale, claws of the tarsi fuscous. *Abdomen* above black, the margins of the segments white, the last abdominal segment posteriorly broadly white, and roundly produced over the long genital segment, which is whitish at the apex. Length, 1¼ line.

Close to *T. tenerrima*, H.-Schf., but distinct by the black spots on the head, pronotum, and scutellum, the absence of distinct vittæ on the elytra, the fuscous membrane, &c.

The male is unknown to me. I took three females at the Addington Hills on 26th October last, beaten out of blackthorn growing among other bushes.

Eupteryx tenellus.

Cicada tenella, Fall., Act. Holm., 43 (1806); Hem. Suec., ii, 52, 44 (1826). *Typhlocyba tenella*, H.-Schf., F. G., 164, 16; Flor, Rhyn. Livl., ii, 421, 27 (1861); Kirschb., Cicad., 191, 32 (1868). *Typhlocyba pulchella*, H.-Schf., F. G., 124, 6. *Eupteryx tenella*, J. Sahlb., Not. Fenn., xii, 192, 3.

Pale yellow. *Head* broadly rounded anteriorly, two large rounded black spots on the frons, and one (transverse) on the posterior margin; *face* convex, with two longitudinal blackish vittæ. *Pronotum* somewhat longer than the head, posterior margin straight; the middle and posterior half of the disc (except the extreme margin) fuscous-brown. *Scutellum* large, with a sharp transverse depression beyond the middle; the basal angles broadly black. *Elytra* pale greenish-yellow, with the scutellar margin, a broad stripe down the claval suture, and two narrower and shorter stripes beyond, dark fuscous; *membrane* infuscated, nerves darker. *Wings* hyaline, longitudinal nerves thick, fuscous. *Legs* yellowish, spines of the hinder tibiæ infuscated, apex of the last joint of all the tarsi, also the claws, fuscous. *Abdomen* black, the segments margined with yellow. Length, 1¼ line.

A very distinct species, unlike any other of the genus.

A few specimens in Dr. Power's collection, taken by him at Birdbrook, Essex, at the end of May. Sahlberg says it is found on *Urtica dioica* in South Finland.

Lee: *November 15th*, 1875.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

Description of a new British species of the Family DELPHACIDÆ.

LIBURNIA PALUDOSA.

Delphax paludosa, Flor, Rhyn. Livl., ii, 82, 27.

Undeveloped form, ♂.

Pale yellowish or brownish-yellow. *Antennæ:* apex of the 1st joint and base of the 2nd narrowly black. *Elytra* as long as the abdomen, slightly narrowed towards the long rounded apex.

Head brownish, inclined to fuscous-brown. *Crown* with a somewhat fuscous shade in front; basal foveæ distinct. *Face:* keels moderately acute and prominent. *Antennæ* brownish-yellow; 2nd joint at least one and a half times as long as the 1st; 1st joint at the apex, and 2nd at the base, narrowly black.

Thorax—pronotum yellow, with a distinct puncture on each side of the centre; posterior margin concave or somewhat angulate. *Scutellum* yellow. *Elytra* pale yellowish or brownish-yellow; nerves somewhat thickly and finely punctured. *Corium* slightly tapering from the apex of the clavus to the long rounded apex. *Sternum* yellow, or with a slight fuscous shade. *Legs* yellow; 1st and 2nd pairs with a brownish or fuscous shade. *Tarsi:* 1st and 2nd pairs black, or 1st and 2nd joints piceous and 3rd black; 3rd pair, 3rd joint black.

Abdomen: above, yellowish; beneath, pitchy-brown; genital processes brown, towards the top reddish; upper portion, when viewed from beneath, somewhat square, with the upper margin concave. Length, 1 line.

By the shape of its genital processes, suggestive of *L. neglecta*, but in that species the upper portion is much longer, entirely brown, and attached to a shorter base. In *L. paludosa*, when viewed from beneath, they may be roughly likened to two flags blowing towards each other. The different coloring of the antennæ and shape of the elytra are also excellent diagnostic characters.

Two ♂ examples have been captured by Dr. Power at Merton and Wimbledon in June and July.

Lee: *29th November*, 1875.

Note on Mr. Scudder's "Remarks on the old genus Callidryas."—In the Proceedings of the Boston Society of Natural History, vol. xvii, part ii, p. 206, is a short paper by Mr. Scudder reviewing the N. American species included in my Monograph, and adding the description of a "new species?" which he does me the honour to name after me.

With Mr. Scudder's usual anxiety to sub-divide genera, he begins by splitting off *C. Pyranthe*, Linn., as a distinct genus from *Catopsilia*, and type of *Murtia*, Hübner. I can only say that the characters which he gives to distinguish it from *Catopsilia* do not hold good in a series of specimens; it is easy to pick out an example of a species with short antennæ, and compare it with an example of another species having long antennæ, but the point to consider is whether this character will stand when we examine forty or fifty of each species.

The male of *P. Agarithe* is often larger, and sometimes smaller, than it is represented in my figure; it does not differ so much in the mealy border above, as in the central streak below. As I have not given a short comparative diagnosis of the four orange males in my Monograph, I append them here:—

1. Wings below with zig-zag discal markings.
   - 1^a. Secondaries with silver spots below.
     - 1^{aa}. Primaries above with black expanded spots at terminations of nervures, generally uniting into a continuous marginal border... *Phœbis Herstlia.*
     - 1^{ab}. Primaries above with small black dots at terminations of nervures. *Phœbis rorata.*
   - 1^b. Secondaries without silver spots below..... *Phœbis Argante.*
2. Wings below with discal markings replaced by a straight oblique line or streak: otherwise as in the preceding species..... *Phœbis Agarithe.*

These characters will always distinguish the males of the above species: the females are as usual quite unlike each other, and therefore need no such tabular diagnoses to distinguish them.

The figure of *C. Eubule*, ♂, was taken from a very good example. I had no need to take my drawings from rubbed specimens, as suggested by Mr. Scudder, since I had the run of all the fine collections in this country, and had about 500 *Callidryades* in my house at one time.

The *C. Cypris* of Edwards' List, and quoted by Mr. Scudder, will probably turn out to be *Metura virgo*, mihi, ♂.

Aphrissa Butleri, Scudder, is the *Callidryas Boisduvali* of Felder, between which and *C. Statira* Mr. Salvin has a perfectly transitional series, as mentioned in my Monograph Lep. Exot., p. 143.—A. G. Butler, British Museum: *19th November*, 1875.

Note on Lycæna Galathea, Blanch.—In 1865, Mr. Moore described and figured in Proc. Zool Soc. an Indian species of *Lycæna* under the name of *Pol. Nycula.* This he now believes to be identical with *Lyc. Galathea*, Blanch. (1844). In this opinion I concur. I believe, also, that *Lyc. metallica*, Feld. (1865) is only a synonym of *L. Galathea*, in spite of the differences on the under-side of the ♂, as figured by Felder. Felder does not figure the under-side of the ♀, but his description applies accurately to the under-side of *L. Nycula*, ♂, so that I think it probable

that his *L. metallica* ♂ was described from an example of *L. Galathea*, in which the pupils of the spots on the under-side of fore-wing were obsolete. This is the more probable, as in the allied European species, *Lyc. Pheretes*, the same peculiarity occurs: the pupils being sometimes very distinctly marked, and in other cases almost invisible. Felder remarks on the relationship of this species to *Lyc. Cyllarus*. I think it closer to the *Pheretes* group, though certainly it has some affinity to *Lyc. Cyllarus* and *L. melanops*. The synonymy (if I am correct) should now stand as follows:—*Lyc. Galathea*, Blanch. (1844); *Lyc. Nycula*, Moore (1865); *Lyc. metallica*, Feld. (1865).—Richard P. Murray, Beckenham: *December*, 1875.

Symphædra Dirtea attracted by bait.—My old Penang friend, J. P. Stewart, Esq., having lately paid me a visit, we soon found ourselves talking over our old entomological days in Malacca. I was thus enabled to recall and verify a fact that had quite slipped from my mind, viz.:—that *Symphædra Dirtea* can be attracted by a bait. Slices of cut pine-apple placed along a road that ran by the jungle, were generally sure, in a short time, at the proper season, to be visited by a good supply of both males and females. The sexes, as is well known, are strikingly dissimilar, but the collectors there, without any special knowledge of *Lepidoptera*, had come to the right conclusion owing to both forms being generally found together. Old and fallen fruits of most kinds were attractive, but sliced pine-apple was mostly used as bait. I had been told this when in Province Wellesley, Penang, but having never tried it, I am glad to have the authority of my friend Stewart, who has been very successful in catching this butterfly by the above method.—W. L. Distant, Streatham Cottage, West Dulwich.

Note on sugaring.—Some entomologists assert that it is useless to sugar when ivy is in bloom. Now, I do not question the fact of moths being attracted by the ivy blossom, but I do question the uselessness of sugaring near ivy when it is in blossom. I had an opportunity of proving this about the end of September, when that plant was flowering.

The place where I sugared was in Berwickshire, near the coast. I first cut about a dozen sticks, four or five feet long, and, by means of grass, tied various plants on to the top of them. These sticks I placed in the ground in a long walk, with shrubs on both sides, and well protected from northerly and easterly winds. A plantation lay to the south of the walk, and a wall bordered this plantation on the westward, while, on the top of this wall, forty yards from where the sticks were placed, was the ivy. It overhung both sides, and covered a large portion of the wall.

In the day-time wasps, drones, blue-bottle flies, &c., were in crowds on it, while, in nights previous to my sugaring, moths were there in abundance. I used the common sugaring mixture. This I placed on the plants. The night was peculiarly favourable for the trial, being very dark, while a light wind blew the smell of the sugar down in the direction of the ivy. About half-past seven I came out and examined all the plants. I found it a complete success. I examined the ivy next, and found only five or six moths. It was the same at 9 o'clock. The moths at the sugar were mostly inebriated. Specimens of *Xylina ferruginea* were very numerous; *Cerastis vaccinii* and *Scopelosoma satellitia* were also numerous. I got five specimens of *Calocampa exoleta*, and two of *Agrotis suffusa*. *Gonoptera libatrix* was

also there, for I got two specimens, one of which had apparently newly come out. *Miselia oxyacanthæ*, *Miana literosa*, *Triphæna pronuba*, and one or two other species, were there too. In point of number, I have never beheld such an assemblage of moths. This surely shows that it is not useless to sugar near ivy when it is flowering. —W. SANDISON, 43, Govan Road, Glasgow.

Query as to breeding Agrotis agathina.—The difficulty of rearing this moth from the larva has, I believe, been solved and published during my recent absence abroad. I am very anxious to see the plan recommended, but cannot learn in which magazine the publication took place. May I ask for this information from the readers of this Journal?—G. NORMAN, Cluny Hill, Forres.

Xysmatodoma melanella and Solenobia pomonæ.—I am much pleased that attention has again been directed to the problem of the life-history of *Solenobia pomonæ* and *X. melanella*. Mr. Boyd, before publishing his note on the subject, kindly forwarded it to me; and although I fear I am not quite convinced that my view of the subject is wrong, still I thank him for the kind and courteous way he has approached the subject.

I suppose I have had more opportunities of studying the history of *pomonæ* than most entomologists, as I have collected, since I first found the species, many thousands of the cases in the hope of discovering the male form. From the time of my first finding the species until the year when my notes appeared in the Magazine (1869), I had been in communication, respecting these cases, with my esteemed friend, the late Mr. Doubleday. I had sent him, at different times, hundreds of the cases; and it was acting under his advice, and after I had submitted my notes to him, that they appeared in the Magazine, he thinking, with myself, that, even supposing my view of the subject to be incorrect, still a sufficient amount of attention might be brought to bear on the life-history of *pomonæ* to solve the puzzle of its singular economy.

I will now briefly state my experience of *pomonæ* and *melanella*, so that the present position of the subject may be clearly defined; and I hope the matter, deeply interesting as it is, will not again be lost sight of until solved finally beyond doubt: and should the solution prove adverse to the view I propounded, still my object in bringing it forward will be accomplished.

The first year I found the cases was, I think, either 1855 or 1856; but, upon submitting them to an entomological friend, he thought they would prove dipterous, an opinion, I believe, shared at the time by Mr. Stainton. I, however, collected a lot of the cases; but, as I apparently bred neither flies nor moths, I threw them away. A closer examination of the larva the next season proved them to be lepidopterous, and I collected several thousand cases, a large proportion of which I divided among my correspondents, as it was evident the species, when bred, would prove a new one to Britain. I was very successful this time in rearing specimens, but all were of the apterous form; and the singularly long ovipositor for a lepidopterous insect at once showed its distinctness from any other known species. Several of my entomological friends, to whom I sent cases, were also successful in rearing them, but with like results to myself, only apterous forms appearing.

We thought, perhaps, the next year we should succeed in breeding the male

form, and again I collected and sent round an enormous number of cases (the cases this season being in wonderful profusion, hundreds of specimens might have been taken on a space of a few inches square); but again, to our great disgust, nothing but the apterous form could be bred. This went on till 1869; and my correspondents, one after the other, gave up the problem. I may add here that among the large number of cases I had bred myself, or had sent to correspondents, not a single example of *melanella* had ever occurred.

In 1869 the change came: nearly all the cases from the trees, from which I had been in the habit of breeding *pomonæ*, now produced *melanella*, the porportion of winged forms to apterous being, I think, about ten to two. I at once joyfully wrote off to Mr. Doubleday that I had at last bred the male form of *pomonæ*, but added that it was strangely like *melanella* as described in Mr. Stainton's Manual. Mr. Doubleday regretted he had no *melanella* he could send me for comparison, but he lent me a German work in which *melanella* and cases were figured, and I found my surmise was correct, and that my winged forms were *melanella*.

In 1870, I again collected a lot of cases, and the proportion of 1869 was reversed; and I bred a very large proportion of apterous forms, the winged species being few and far between. In 1871, my cases produced only apterous forms, not a single winged example appearing. In 1872, from several causes, I did not collect any cases.

Last year my friend, Mr. W. H. Grigg, and myself again collected a large number of cases, many of the fully-grown ones having the truncated appearance that Mr. Boyd describes as peculiar to *melanella*. We both bred the apterous form freely, and nothing else. Thus the matter stands. Mr. Boyd has met with both species, if species they are, feeding together; and it will be interesting to learn if the cases are of equal distribution everywhere. The cases of both forms I have found on oak, pear, apple, plum, cherry, ash, beech, elm, and poplar trees: they occur at from two to six feet from the ground, principally; and after the eye becomes accustomed to them, are not hard to find. If they occur here during the coming spring, in anything like their usual abundance, I shall be most happy to send cases to any entomologists who care to join Mr. Boyd and myself in endeavouring to settle the matter conclusively.

In rearing both forms in 1869 and 70, I found my experience was exactly as Mr. Boyd describes, the apterous form leaving the pupa-skin inside the case, while *melanella*, or, I should have said, the winged form, left the puparium emerging more or less from the case, sometimes bringing it altogether out; but when we consider the activity of the winged form on the one hand, even when emerging from the pupa, and the sluggish and almost legless apterous form, this difficulty disappears in a large measure.

With respect to the editorial note attached to Mr. Boyd's paper, I may add that pooh-poohing a subject will neither prove or disprove it; and I think that the editors of the Magazine will hardly risk asserting that *pomonæ* has power to reproduce itself continuously without the male form appearing.—GEORGE HARDING, Stapleton, near Bristol: *December 9th*, 1875.

Description of the larva of Botys terrealis.—On the 13th September last I received a fine full-grown larva of this species from Mr. J. B. Hodgkinson of Preston, who had collected about half a score at Grange two days previously.

The larva is very lively, about an inch in length, and of tolerable bulk in proportion; head globular and shining, small, about the same width as the 2nd, but much narrower than the succeeding segments; body cylindrical and very markedly attenuated towards the extremities; the segmental divisions are rather deeply cut; the somewhat glossy and semi-translucent skin is clothed with a few scattered short hairs; the usual dots distinct.

Ground colour, rich reddish-pink; the head and anal segment pale yellowish-brown, mandibles and a few spots on the lobes darker brown; the most conspicuous of its markings is the broad pulsating vessel which forms the medio-dorsal stripe: it is of a considerably darker tint than the general ground colour: there are no other particular markings, but the sides are variegated a little with a darker shade of the ground colour. Ventral surface a little paler, and each pro-leg tipped on the outside with a black dot.

Freyer describes the larva as "pale green, with several slender, rather darker, lateral lines." This must have been taken from a very different variety to mine.

Mr. Hodgkinson collected the larvæ from golden rod (*Solidago virgaurea*), and in his note accompanying the one sent me, says, "the plants they are on are denuded of flowers, as a rule, and generally shabby." He could find no larvæ on the plants which were in full bloom.—Geo. T. Porritt, Huddersfield: *December 2nd*, 1875.

On the larva of Hydrocampa nymphæalis and its habits.—I am glad to express my thanks to Mr. Henry Laver, of Colchester, for the welcome gift, on the 5th July, 1875, of two aquatic larvæ which proved to be of this species, and also for a supply of *Potamogeton natans*, the plant on which he had found them feeding; and I venture to suppose that some account of my observations may perhaps be acceptable.

These larvæ—differing much in size, but, as presently appeared, both nearly full-fed, the difference in size being a sexual distinction, the ♀ larger than the ♂—were inhabiting cases floating on, or near the surface of, the water; the length of the largest case was one and a half inches by three-quarters in breadth, the smaller case not more than three-quarters inch long by three-eighths broad; both of a flattish and somewhat oval general figure, formed with two pieces of the *Potamogeton* leaf placed one upon the other, and fastened together with silk at the sides; the component pieces not cut quite alike, for at one part the upper piece projected a little beyond the lower, and at another part the reverse of this occurred; these irregularities of outline were most noticeable in the smaller case; the ends of both were free, though appearing to fit close; the upper piece showing a slight convexity of surface, the lower piece nearly flat, possessing much elasticity at the ends; the edges of the case were always a little submerged, and only the central convex part of the upper surface would appear above the water while it was floating at the top; when entirely submerged, with the occupant hidden within, it appeared quite flat, like a mere fragment of leaf, due to an optical effect of the water.

Thinking the larvæ appeared mature, I lost no time, on the day they arrived, in securing figures of them. I pushed the largest out of its case into a saucer of water; it soon ascended the side of the saucer, above the water, so far that only its hinder segment remained immersed, and in this position, for several minutes, it kept still, affording me the opportunity of a good examination. I found it to be seven-eighths inch in length, stout in proportion, thickest in the middle of the body, and tapering

towards each end rather suddenly; the head rather small; the segments decreasing in thickness from the seventh, and again decreasing from the tenth to the anal tip, all well defined by deep, yet close, divisions; the third and fourth segments with three sub-dividing wrinkles on the back, the other segments with only one deep wrinkle, the sides dimpled; the anterior legs tolerably well developed, the ventral and anal legs mere fleshy swellings with a flat process at the extremity fringed with fine hooks. The colour of the head light olive-brown, the lobes and mouth darker brown; a pale olive shining plate on the second segment margined both in front and behind by a fine black line, and within it, after an interspace of the pale ground, there is, in the middle, a transverse fusiform brownish-black mark dorsally divided by a thin pale line; the rest of the body above light olive brown with a darker dorsal stripe, and fainter indications of a sub-dorsal stripe less dark; the body beneath much paler, of a light buff colour very faintly tinged with olive; no abrupt change of colour to mark the division of the back from the belly, as the tints of both melt slightly together along the spiracles, which are very small, roundish oval, level with the skin, of the ground colour delicately outlined with reddish-brown; the hooks of the feet dark brown; the whole skin soft and velvety, appearing darker in the depths of the segmental divisions, and paler at the folds.

After remaining quiet about ten minutes, whilst I was making my observations, the larva began by degrees to recover from its fright, and, regaining confidence, turned back into the water, sinking in it to the bottom, about an inch in depth; here it stretched itself out to the length of apparently an inch and a half,* looking very thin and silvery, reminding me of a preserved larva unnaturally attenuated; in this way, by its motions, it appeared to be searching for its case, or for the food-plant; and when presently its empty case was placed on the water near it, and it contrived to touch the case with its head, it seemed baffled at first in its attempts to get into it, but in a few minutes, while struggling with the buoyant structure, it arrived with it at the side of the saucer, up which it crawled, and from thence on to the top of the case, appearing perfectly dry, and with its previous proportions and shape resumed; and, on coming to one end of the case, it tucked down its head, and in a couple of seconds had entered within, and was out of sight. I then examined the smaller larva, and found it varied only in being a little deeper coloured. After this I left them quiet, and they seemed very shy for a couple of days, and lay under the lowest broad leaf of the floating *Potamogeton*; but while thus hidden themselves from view, their situation could be made out, easily enough, by the large discoloured curved blotches they caused on the leaf by eating away the lower cuticle, and occasionally making a small hole quite through the upper surface; this leaf was nearly consumed by the fifth day, by which time their shyness had in a measure worn off, and they were then eating at the edges of another leaf, their cases in view alongside, or lying above the leaf: on the seventh day, I noticed the largest larva had drawn the edge of a leaf a little way within the opening of its case, and was then eating without at all exposing itself: its companion at this time was lying hidden in its case at the bottom of the water for several hours, but it came up again and fed at intervals, often protruding its front segments as it crawled along the stems and leaves of the plant; the largest larva also at times protruded as many as seven segments downwards, as though exploring the depth of the water, but was generally

* Probably an optical effect of water.

the most intent on its food; sometimes, while reposing within its case, it would lie on the upper surface of a leaf, in which position it was not readily detected, the assimilation being so perfect; at other times, like its companion, it would be floating concealed, its case being just in contact with the edge of a leaf or stem; indeed, I found I could not isolate either of them at such times in the clear space of water between the leaves, for whenever I placed one there, as lightly as possible, it seemed drawn, though gently, yet with an attraction irresistible, towards some part of the plant; and if one end of the case first touched it, the other end swung round till the side of the case was in contact, when it would be still.

Finding the water much sullied by the frass, I thought it necessary to have it changed every second day, and each time this operation occurred, the larvæ and their food were transferred, for a few minutes, from the large china bowl in which they were kept to a saucer of water, and while here it happened, on three occasions, that pellets of frass were ejected, with some force, out of the water, to the distance of eight inches beyond the saucer, on the table: its propulsion seemed frequently to be in an upward direction, as I constantly noticed, latterly, a large proportion of frass adhering to the side of the bowl two inches or more above the water.

After feeding well for ten days, during which time all the five leaves of the plant sent with them had become much ravaged and reduced to fragments, to my great satisfaction, the larvæ appeared on the 16th of the month to have ceased feeding; and towards evening I was greatly surprised to see the smaller larva had abandoned its case, and was crawling naked over the remains of its food-plant, its colour a little faded; on the morning of the 17th I found it half out of the water, on the side of the bowl; in the afternoon I saw, with much perplexity, the larger larva had also left its case, and was crawling about through the water in a forlorn condition, and much paler than before. I now had great anxiety for their ultimate fate, as their behaviour did not seem to agree with their alleged habit of pupating within their cases, which were still as fresh-looking as at first; so, with a faint hope of their spinning up amongst the *débris* of their food, I left them for the night. The next morning, seeing both larvæ out of the water, and looking very miserable, it struck me they were seeking some other kind of plant to make up in, and I supplied some *Callitriche verna* and *Helosciadium nodiflorum*, but on neither of these plants would they stay, and I then tried some pieces of *Sparganium ramosum*, on which they crawled about and lingered some time, which induced me to obtain several longer pieces, and to stand them upright, with the lower ends in water, within a glass globe, and, after placing the larvæ there, to tie over a piece of muslin at the top, lest they might wander away; this arrangement proved successful; the burr-reeds were now it position as they would be naturally growing out of water, and I had the great pleasure and relief of seeing, within a minute, the larger larva creep up about an inch or so above the water level, between two pieces of the *Sparganium*, and immediately begin to spin them together; the smaller larva also soon found out two other pieces suitable, and began to spin them together in the same manner, and at the same distance above the water; and I watched their proceedings as long as their heads could be seen in motion, sometimes upwards from side to side, and then below in the same way, until the surfaces were closed up entirely. I let them remain until a week had elapsed, when, seeing the *Sparganium* begin to look bad at the bottom, I cut the pieces shorter, and stood them on some dry moss in a pot covered with gauze.

Both moths were out on August 7th,—a male and female: on examining the puparia, I found the tissues of the *Sparganium* had shrunk so much, that the oval form of the enclosed cocoons stood out in rounded relief on the outer surfaces, while within, the entire space spun over with silk was about one and a quarter inches long by three-eighths wide; and in the middle of this was the cavity of the cocoon five-eighths long by quarter inch wide, smoothly lined with the same greyish-white silk as the rest; that which was below the cavity was more thickly spun than that above it, but both united the flat surfaces close together. The pupa skin remained with the head uppermost, and the shrivelled-up larval skin at the lower end of the cavity; the dimensions of the pupa skin were half an inch in length by nearly three-sixteenths in diameter at the thickest part of the body across the ends of the wing-covers, the abdomen tapering from thence to the anal tip, which is bluntly rounded off without any projecting boss or spike, but having, instead, a horny wart, cleft and bilabiate—not raised above the rest of the surface—and furnished also with a few small bristles; the wing-covers long, the antennæ and leg-cases very long, projecting at their ends free from the abdomen. The colour a light warm brown on the wings and ventral surface, which, with the abdominal tip, are shining, while the thorax and back of abdomen are a little darker, and rather reddish-brown, without gloss; the spiracles projecting conspicuously large, like nipples, each on a slight eminence, were darkish-brown in colour, and shining, surrounded by a paler ring at the base, three of them being near the margin of the wings on the sixth, seventh, and eighth segments, and a smaller one, less defined, on the twelfth, but on the intermediate segments none are to be seen.

To complete my notes in chronological order, I must here add that, on August 11th, 1875, I received, from the Rev. A. Fuller, a female moth of this species, captured by him, a few days before, while it was flying about a pond at Harting. This moth was boxed and forgotten for a day or two, and when the box was opened it contained a batch of eggs, some of them still adhering to the abdomen of the insect.

The eggs were laid on the chip in clusters, with some in a string that were attached to the tail of the moth, all firmly glued together on the surfaces of the chip. The shape of the egg roundish ovate and much flattened, without gloss, and of a very deep yellow amber colour. I placed the chip with the eggs to float in water, and on the 19th August two eggs were turned black; a few days later they had all become black, but none of them hatched, and I threw them away late in September. —William Buckler, Emsworth: *October 22nd*, 1875.

P.S.—After preparing the above notes for the press, Mr. McLachlan has most kindly given me the opportunity of reading Réaumur's wonderfully interesting "Mémoire des Chenilles Aquatiques," by far the greater portion of which refers to *H. nymphæalis*; and I should like to quote his observations on a few points which I had not myself the opportunity of observing.

Réaumur found, near the edges of the *Potamogeton* leaves, many little clusters of the eggs, and he seems to think the moth covers them with bits of the leaves, but as he never closely watched a moth laying its eggs (and it is hard to understand how she could effect the concealment in the way he supposes), he cannot say *how* she managed to cover them.

As soon as ever the larvæ are hatched—at the end of July, or beginning of August—he says each makes a little case for itself, and as it grows, continually makes fresh cases adapted to its increasing size.

He watched some of the larger larvæ making cases, and thus describes what he saw:—"To make itself a new case, the larva clings to the lower side of a leaf of "*Potamogeton*; with its 'teeth' it pierces some portion of the leaf, and then it "bites it by degrees in following the curved line, which *must* have the outline of the "piece it wishes to detach. . . . When the larva has cut, like a piece of cloth, "a bit of the leaf of suitable size and figure, it has half the stuff necessary for "making itself a case; it seizes this piece with its 'teeth,' and carries it either under "another part of the same leaf, or beneath another leaf; it stops and fixes it in the "place which seems suitable. But it is to be noticed that it places it so that the "under-side of the piece is turned towards the under-side of the new leaf, in order "that the interior sides of the case are always made of the under surface of the two "pieces of leaf. And the caterpillar has determined to use them thus for a good "reason: although the leaves of *Potamogeton* are tolerably flat, they are a little "concave below; thus the under-side of the two pieces of leaf are turned towards "each other, though the edges of one are set against the edges of the other, there "remains between them a cavity for the dwelling of the larva; and that cavity "would be more difficult to contrive, if the upper surface of one piece were applied "to the under surface of the other.

"Sometimes the larva is content to attach the piece to the under-side of the "leaf, to which it has brought it, ... and that is at the time when it is "about to change to a pupa. Then it spins in the cavity enclosed by the two portions "of leaf a somewhat thin cocoon, but of very close tissue.

"When the larva is not ready to change, it thinks to make itself a case—a "dwelling, which it can carry about wheresoever it wishes to go. It begins by fixing "lightly, by tacking, so to say, the piece it has already cut against the new leaf; it "leaves *apparently* all round between the leaf and the piece at intervals, but tolerably "near one another, places by which it can put out its head. But it is certain that "the piece which it has attached to the leaf serves as a model to cut from it another "piece of equal size and similar shape. These two pieces together form its complete "covering; the larva finishes uniting them all round their outline, except at one "of the ends, where the two halves of the case remain simply resting against "one another. . . . . .

"Whilst the larva continues to grow, its dwelling is nothing but these two pieces "of leaf fastened together, though when the time of its change draws near, it carpets "its case, making in it a cocoon of white silk."

As Réaumur speaks of finding cocoons under water containing pupæ, and as the pupæ themselves are furnished with spiracles similar to those of the larvæ, it might well be that ordinarily the pupation takes place under water, but for the time the conduct of my two larvæ puzzled me, when I saw them making their cocoons above the surface; perhaps there was not a sufficient quantity of *Potamogeton* left to satisfy their requirements in spinning themselves up. Réaumur notices—but confesses he cannot explain—the fact that the cases, though constructed entirely under water, are yet themselves quite dry and free from water—diving bells in fact—and he credits the larva with some power of expelling the water after it has completed a case: his description of colour of the larva seems to refer to its appearance under water, when it shows luminous with a brilliant silvery glitter as it advances the front segments out beyond its case, for he says "almost all its body is white, and of a white that must be (called) glittering," though he calls the head brown and the back of the first two or three segments tinted with brown.

There is such an artlessness and freshness in Réaumur's writing, that in laying down the book, one seems to have been listening to the conversation of a living brother of the net, rather than reading notes set down a century and half ago; and, from having so recently travelled over the same ground with *lemnalis* and *nymphæalis*, I can add my testimony to all that has before been given to the wonderful quickness and truth of his powers of observation.—W. B.: *November 20th*, 1875.

Doryphora 10-*lineata*.—Recently, after looking through a small case of *Coleoptera* sent from New Grenada, so long ago as 1845, I found two specimens of the so-called "Colorado Potato Beetle." I have compared them with specimens from Canada and cannot detect any difference. As it has been stated that this insect was only known up to a few years ago as living in the Rocky Mountains towards New Mexico, I think it well to put on record that it has been received from another district, so widely separated from that which was supposed to be its head-quarters, long before it attained to such disagreeable notoriety.—W. S. M. D'Urban, Albuera, St. Leonard's, Exeter: *December*, 1875.

Sphinx convolvuli in Devonshire.—I have received four specimens of this Hawkmoth taken between the middle of September and beginning of October. One was from Honiton and the remaining three from this neighbourhood.—Id.

Colias Edusa in Devonshire.—This butterfly was quite numerous on the cliffs between Dawlish and Teignmouth on the 14th October last.—Id.

Migratory Locust in North Devon.—A large greenish locust, which I believe to be *Pachytylus migratorius*, was shown to me on the 25th August, having been taken a few days previously at Chulmleigh in North Devon. It was quite distinct from *Acrydium peregrinum*, several specimens of which were taken in Exeter, in the autumn of 1869.—Id.

Entomological Society of London: *5th January*, 1876.—Sir S. S. Saunders, C.M.G., President, in the Chair. Messrs. F. J. Horniman and D. G. Rutherford were elected Members; and Mr. F. Enock and Professor Dickson, Subscribers.

The Rev. R. P. Murray exhibited a series of *Lepidoptera* and other insects taken in the Alps during the past summer, including interesting local varieties.

Mr. S. Stevens exhibited a Dragon-fly (*Æschna mixta*; not a common species), found dead in his garden at Norwood in the middle of last November.

Mr. Champion exhibited *Aleochara hibernica*, Rye, from Slieve Donard in Ireland, *Homalota egregia*, Rye, from Caterham, and *Cryptophagus subfumatus*, Kraatz, from the London District (described in No. 140 of this Magazine).

Mr. Bates communicated "Additions to the list of the Geodephagous *Coleoptera* of Japan." Mr. Miskin, of Brisbane, communicated the description of a gigantic species of *Saturniidæ* from Cape York, which he termed *Attacus Hercules*. The insect expanded to nine inches, and the hind-wings were furnished with long tails; both sexes were in the Brisbane Museum. Mr. C. O. Waterhouse communicated a paper on new genera and species of *Coleoptera* belonging to various groups.

Part iv of the "Transactions" for 1875 was on the table.

MONOGRAPH UPON THE BRITISH SPECIES OF *SARCOPHAGA*, OR FLESH-FLY.

BY R. H. MEADE.

Genus SARCOPHAGA.

Gen. char. Body elongate. Antennæ incumbent, with the third joint rather more than twice the length of the second. Arista long, with the basal half plumose (except in some aberrant species), and the extremity bare. Eyes naked, and separated from each other in both sexes by a frontal space, which is wider in the females than in the males. Margins of facial groove smooth. Forehead with two rows of setæ in the males, and four in the females. Cheeks with a few small bristles placed in a somewhat oblique row below each eye, and varying in size in different species. Thorax large, but greater in length than width, divided into two nearly equal parts by a transverse suture, and furnished with a number of bristles, some of which are placed upon the sides in irregular lines, while others are always arranged longitudinally in two parallel rows upon the dorsum. These rows are placed upon the two outer of the three broad black stripes by which the back is marked, and always contain a definite number of bristles in each row, some in front and others behind the transverse suture, the number varying in different species, but always constant in the same. The central part of the back is free from bristles, with the exception of two placed just above the base of the large scutellum.

Abdomen elongated in the males, and oval in the females, consisting of four distinct segments, with the addition in the males of two terminal or anal joints, which are more or less tumid and involuted. The segments are armed with spines upon their posterior margins, but not upon their middle surfaces (as in the *Tachinidæ*). Two spines are always placed near together in the centre of the posterior edge of the third segment, and (in many species) two also upon the same part of the second segment.

Alulets or scales large, the lower scale being about twice as long as the upper.

Wings with the fifth longitudinal vein bent at an acute or right angle, and then extending in a curved line to the margin, which it reaches at a short distance from the extremity of the fourth longitudinal, leaving the first posterior cell partly open. The angle of the fifth vein is apparently furnished at the point of flexure with a short appendix. The fourth longitudinal vein is always armed at its base with a row of short spines or teeth, which are also met with in some species upon the second vein.

Legs furnished with numerous spines and hairs. Feet with large pulvilli and claws; the points of the latter are mostly broken off on the fore, and often on the middle, feet of the males.

The genus *Sarcophaga*, which includes a considerable number of British species (I have already determined twenty, and have no doubt that many more will be found), is composed of a series of yellowish or whitish-grey flies, striped and variegated with brown or bluish-black. The palpi and antennæ are always black; the thorax is marked with three longitudinal broad black stripes upon the dorsum, and also with some short and broken lines upon the sides; the abdomen is tessellated upon its upper surface, with a number of irregularly shaped black and white spots, forming glittering patches, which reflect the light, so that they appear of different sizes, shapes, and colours, when viewed in different directions, but are arranged more or less in longitudinal rows or stripes, which are much more distinct in some species than in others.

The majority of these flies are so much alike, that it is impossible to distinguish the separate species from each other by mere differences in colour and design; and the greater number of authors having chiefly relied upon these points, very few of the species described by them can be determined with certainty. Varieties of the same have been named as separate species, different species have been confounded together, and the same species has been described by different authors under different names. Though so much alike, however, in general appearance, many very good structural points exist by which the different species of *Sarcophaga* may be separated from one another, and named with certainty; and, before commencing the description of them, I will briefly enumerate the principal distinctive characters upon which reliance may be placed.

The *first*, which has been noticed by all authors, and by which the species may be separated into two principal divisions, is the colour of the terminal segment of the abdomen, which is always black or grey in one division, and red in the other.

The *second* important character is the presence or absence of minute spines upon the second longitudinal vein of the wings, similar to those present in all species at the base of the fourth.

The *third* is whether the hind tibiæ of the males are bearded or not with long soft and often thick hairs.

The *fourth* is whether the second abdominal segment is armed like the third with two strong central spines upon its posterior margin.

The *fifth* is the number of bristles in the two longitudinal rows

upon the dorsum of the thorax, some species having four, many only three, and a few only two, behind the transverse suture (see figs. 1, 2, 3).

Besides these important characters, there are some others of secondary value, which are often useful for the determination of nearly allied species; for instance, the presence or absence of the costal spine upon the wings, the width of the frontal space between the eyes, the size of the bristles upon the cheeks, &c.

To facilitate the description of the species, I shall first arrange them in an analytical manner, and in so doing, shall closely follow the method adopted by Rondani in the 5th vol. of his "Prodromus Dipterologiæ Italicæ," a work from which I have derived much valuable information respecting this genus.

ANALYTICAL ARRANGEMENT.

A. Apex of abdomen black or grey in both sexes.

B. Wings without spines upon the second longitudinal veins.

C. Posterior tibiæ of ♂ bearded on their inner sides.

D. Abdomen with two spines in the centre of the edge of the second segment.

E. Thorax with four bristles behind the transverse suture in the two dorsal rows.

1. Carnaria, Lin.

EE. Thorax with only three dorsal bristles behind the suture.

a. First anal segment shining black in ♂.

2. Albiceps, Meig.*

aa. First anal segment grey in ♂.

3. Atropos, Meig.

DD. Second abdominal segment without central dorsal spines.

F. Thorax with four dorsal bristles behind the suture.

4. Similis, *sp. n.*

FF. Thorax with three dorsal bristles behind the suture.

b. First anal segment of ♂ extruded and shining black.

5. Melanura, Meig.

bb. First anal segment of ♂ mostly retracted, and, when exposed, grey, not black.

6. Agricola, Meig.

CC. Posterior tibiæ of ♂ without beards on their inner sides.†

G. Abdomen with two central spines upon the edge of the second segment.

H. Arista with short hairs.

a. Arista almost bare. Third joint of antennæ thickened.

7. Laticornis, Meig.

aa. Arista with short, but distinct, hairs at the base. Third joint of antennæ of the ordinary shape.

8. Nigriventris, Meig.

HH. Arista with long hairs.

b. Posterior tibiæ of ♂ with a few long hairs upon their inner sides.

c. Surface of abdomen tessellated in the ordinary manner.

9. Juvenis, Rond.

cc. Abdomen marked with three longitudinal black lines.

10. Clathrata, Meig.

* In this and the following species, as well as in many others, it is exceedingly difficult to determine the ♀ unless it is captured along with the ♂, as the distinctive characters are peculiar to the latter sex.—R. H. M.

† In some species there are a few scattered hairs.—R. H. M.

GG. Abdomen without central spines upon the edge of the second segment.

a. Abdomen tessellated in the ordinary manner. Posterior tibiæ of ♂ clothed with short soft hairs.

11. ADOLESCENS, Rond.

aa. Abdomen with a black central dorsal line, and lateral spots upon the posterior margins of the segments. Posterior tibiæ of ♂ bare.

12. AFFINIS, Fall.

BB. Wings with spines upon the second longitudinal veins.

a. Abdomen tessellated in the ordinary manner.

13. SETIPENNIS, Rond.

aa. Abdomen with the spots or patches arranged in lines.

b. Eyes near together.

14. DISSIMILIS, Meig.

bb. Eyes wide apart.

15. INFANTULA, Rond.

AA. Apex of abdomen red in both sexes.

I. Wings with the second longitudinal veins unarmed.

J. Posterior tibiæ of ♂ bearded upon their inner sides.

K. Abdomen with two central spines upon the edge of the second segment.

16. HÆMORRHOIDALIS, Zett.

KK. Second abdominal segment without central spines.

a. Black frontal stripe wider than the interval between the stripe and the eye on each side.

17. NURUS, Rond.

aa. Frontal stripe equal in width to the space between it and the eye.

18. CRUENTATA, Meig.

JJ. Posterior tibiæ of ♂ bare.

19. HÆMATODES, Meig.

II. Wings with spines upon the second as well as the fourth longitudinal veins.

20. HÆMORRHOA, Meig.

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1. CARNARIA, Lin., Meig., Macq., Zett., Walk., Schiner, Rond.
striata? Meig., Macq., Walk., Zett., Sch.
cærulescens? Zett., Rond.

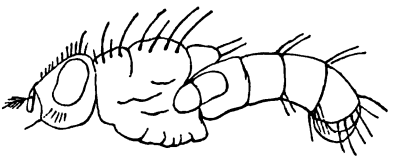
Yellowish or whitish-grey, striped and tessellated with black. Posterior tibiæ of ♂ with long and thick beard; middle tibiæ also more or less bearded. Four bristles in the dorsal thoracic row behind the transverse suture, and two central spines on the margin of the second abdominal segment. Length, 4—8 lines.*

Head: forehead and face prominent, the latter varying in colour from pale golden-yellow to pure white, with dark grey reflections when viewed laterally. Frontal space from one-fourth to one-fifth of the width of the head in breadth in ♂, and about one-third in ♀. Frontal stripe black. Setæ upon the cheeks very small. Arista with longish hairs.

Thorax and *Scutellum* grey. Three broad black stripes extend the whole length of the back, and are continued more or less distinctly over the scutellum; two irregular or broken stripes are also placed on each side. Ten or twelve bristles are arranged upon the sides in two or three irregular rows, and six or seven others in a line upon each of the two lateral broad stripes upon the dorsum, four of which are always placed behind the transverse suture and two or three before it. Of the posterior ones the two hindmost are the largest, then comes a small one which is sometimes obsolete, and in front of this a stronger one, though

* By a line, I mean one-twelfth of an inch, or slightly more than two millimètres.—R. H. M.

less than either of the two hindmost. Of those in front of the suture two are generally large, with a small one between them, and there are often one or two other minute ones nearer to the head (see fig. 1).



1

Abdomen tessellated on the upper surface with black, grey, and white patches, which reflect the light differently when viewed in different directions, but which, when looked at from behind, appear to be arranged in three black lines, and in four rows of more or less confluent white spots. First segment almost unarmed, second with two spines placed near together in the middle of the posterior edge, and two or three others on each side. Third segment also with two central spines, and four or five lateral ones on each side, all attached to the edge of the segment. Fourth segment fringed with spines. Both anal segments in ♂ more or less extruded, covered with hairs, and shining black, but having a grey incision between them. Both thorax and abdomen in ♀ are armed as in the ♂, but the spines and bristles are smaller, and sometimes obsolete.

Wings: base and course of the veins more or less clouded with brown, costal spine small or wanting, generally more distinct in ♀ than in ♂. Fourth longitudinal vein armed with nine or ten short spines or teeth, which extend along its base for nearly half the distance from its point of junction with the third longitudinal, to the place where it meets with the internal transverse vein. Fifth longitudinal vein bent at a sub-acute or right angle. External transverse vein more or less sinuous.

Legs: spines and hairs numerous. All the femora thickly ciliated on their undersurfaces; those of the posterior legs armed in addition with numerous strong spines. Tibiæ all furnished with several strong spines upon their outer sides, in addition to those at their extremities; they are very numerous upon the hinder legs. The inner surfaces of the posterior tibiæ of the ♂ are bearded with long hairs along their lower two-thirds, and there is also a short beard upon the hinder surfaces of the middle tibiæ, which becomes gradually shorter from the distal and upwards. These hairs upon the middle pair of legs vary greatly in length in different specimens, being generally longest in the largest individuals. Those in which the beard upon the middle tibiæ is very long, have been considered specifically distinct by Rondani, and constitute his species *cærulescens*.* In small specimens the hairs and spines are all smaller in proportion. In the ♀ the legs are not ciliated, and are armed with fewer spines than in the ♂.

This fly is common almost everywhere. It is described as being viviparous, and its larvæ are said to be deposited in either decaying animal or vegetable substances. The pupæ of this and other species of *Sarcophaga* have often been found in the dung of animals, but this does not prove that the larvæ have lived upon it. Mr. Verrall forwarded to me several specimens of a species with a red abdominal extremity (*cruentata*) which he had bred from pupæ found in pigeon's dung. In this dung were also found the remains of dead pigeons, and it is probable that they had been the food of the larvæ.

(To be continued).

* Rondani considers his species to be identical with the *S. cærulescens* of Zetterstedt, but the latter author says nothing about the beard upon the middle tibiæ of the ♂.—R. H. M.

DESCRIPTIONS OF FIVE NEW SPECIES OF EUROPEAN *HEMIPTERA-HETEROPTERA*.

BY EDWARD SAUNDERS, F.L.S.

CALYPTONOTUS PUTONI, *E. S.*

Caput nigrum; thorax luridus, anteà maculâ mediâ magnâ nigrâ ornatus, basi fusco-punctatâ, angulis posticis nigris; scutellum nigrum valde punctatum; hemelytra lurida, clavi margine internâ, coriique vittâ mediâ, maculâ rotundâ terminatâ, nigris; clavus punctis, seriebus tribus dispositis, ornatus; corio intus seriebus, extus irregulariter punctato; membrana nigra, apice utrinque maculâ albidâ notato; pedes nigri, femoribus subter multi-spinosis, apicibus flavis, tibiis spinosis, tarsis testaceo-fuscis. Antennæ nigræ, articuli primi apice, quarti basi, pallidis.

Long. 3½ lin. Algeria.

CALYPTONOTUS WALKERI, *E. S.*

Caput nigro-fuscum; thorax anteà fuscus, tergo pallidus, fusco-punctatus, lateribus pallidis, impunctatis, angulis posticis maculâque prope angulum anteriorem fuscis; scutellum nigro-fuscum, valde punctatum, apice utrinque lurido. Hemelytra lurida, punctis obscurioribus seriatim dispositis, fasciâ latâ subarcuatâ pone medium positâ, apiceque nigris. Membrana nigra, maculâ apicali albidâ notata. Pedes testacei, femoribus late fusco-fasciatis. Antennæ testaceæ, articulo ultimo nigro.

Long. 2¼ lin. Malta. J. J. Walker.

SCOLOPOSTETHUS BREVIS, *E. S.*

S. decorato affinis, sed formâ *S. cognato* magis approximatus. Ab *S. decorato* distinguendus, formâ robustiore, thorace breviore et postea multo latiore, scutello basi non impressâ, membranâ obscuriori; antennis rufo-fuscescentibus, articulo primo, secundique basi dilutioribus.

Long. 1⅓ lin. Malta. J. J Walker.

Species formâ distinctissima, licet congeneribus colore similis.

MACROPTERNA LETHIERRYI, *E. S.*

Caput nigrum; thorax niger, valde punctatus, in medio profunde transversim impressus, basi rectâ; scutellum brevissimum, nigrum, apice pallido; elytra pallide straminea, basi extremâ marginibusque lateralibus, pone basin interruptis, nigris. Membrana magna lactea, venis fuscis,

fasciâ transversâ latâ fuscâ, vittæ longitudinali ejusdem coloris conjunctâ, in formâ crucis dispositis, ornata. Antennæ pallidæ, articulo primo, apice excepto, quartoque nigris; femora nigra, tibiæ tarsique ferruginei.

Long. 1 lin. Attica.

ONCOTYLUS NIGRICORNIS, *E. S.*

Virescens, pilis nigris dense vestitus, antennis nigris, breviter pilosis, articulo primo subviridi, prothorace antice foveolato; membrana infuscata, venis albis; subter parcius nigro-pilosus, pedibus viridi-flavis, femoribus præsertim infra nigro-guttatis; tibiis nigro-punctatis et spinosis, apicibus cum tarsis nigris.

Long. $2\frac{3}{4}$ lin. La Rochelle. Ipse.

Species distincta et formosa.

2, Spencer Park, Wandsworth:
February, 10*th*, 1876.

BRITISH *HEMIPTERA-HETEROPTERA*—ADDITIONAL SPECIES.

BY J. W. DOUGLAS.

LYGÆINA.

TRAPEZONOTUS DISPAR.

Trapezonotus dispar, Stål, Öfv. Vet. Ak. Förh., 56 (1872); Leth., Hém. Nord., 2 ed. 21 (1874).

Black, with whitish pubescence, on the upper surface scarcely perceptible. *Antennæ* comparatively long, slender, 1st joint, in the ♂, orange. *Rostrum* orange in the ♂. *Pronotum* posteriorly much wider than in front, posterior third (except a spot in the middle, a smaller one towards each posterior angle, and round punctures, which are black), also the side margins throughout, testaceous. *Scutellum* immaculate. *Elytra* as long as the abdomen, testaceous; *clavus* with three to four rows of round black punctures; *corium* with similar but less regularly placed punctures, and at the inner posterior angle a large, rhomboidal black spot; *membrane* fuscous-black; nerves whitish, broad at the base. *Legs*:—♂, *thighs* orange, 2nd and 3rd pairs with a broad ante-apical black ring; *tibiæ*: 1st and 2nd pairs orange, the 2nd black at the base, 3rd black:—♀, *thighs* black, apex orange; *tibiæ*: 1st pair rufous at the base (I have two examples in which all the tibiæ are deep orange, the 2nd and 3rd pairs black at the base); *tarsi* in both sexes black. Length, ♂, 2; ♀, $2\frac{1}{3}$ lines.

I found a few examples on the 17th May last, in an open space among the underwood at Darenth Wood, running swiftly in the sunshine.

As Dr. Stål says, the species is very like *T. agrestis*, but it is always much larger, the testaceous colour on the upper surface lighter and clearer, the antennæ more than proportionately longer, and the pronotum comparatively wider posteriorly. The habits and habitats are also different; for, whereas *agrestis* is found hiding among moss under bushes in the open country, *dispar* runs about in the daytime in woods. *T. agrestis* having all the parts of the elytra well developed, I cannot consider *T. dispar* to be the macropterous form of it, as has been suggested.

GERRIDINA.

Gerris aspera.

Hydrometra aspera, Fieb., Eur. Hem., 108, 8 (1861), J. Sahlb., Not. Fenn., xiv, 254, 5 (1875); *Limnotrechus asper*, Stål, Öfv. Vet. Ak. Förh., 397, 12 (1868); *Hydrometra lacustris*, var. c, Zett., Ins. Lapp., 282, 2 (1840).

♂. Black. *Head* quadrangular, smooth, posteriorly with a small, elongate fovea near each eye, apex ferruginous. *Antennæ* black, 1st and 2nd joints obscure-rufous, 1st longest, 3rd shortest, 2nd slightly shorter than the 4th. *Rostrum* piceous, 2nd joint ferruginous on the apical half. *Pronotum:* anterior portion smooth, hindwardly constricted and lobate, its sides somewhat rounded, incrassate; the disc depressed, with a wide middle keel; anterior margin with a small obtuse tubercle behind each eye; the rest of the pronotum, except the sides, obscure-rufous, coarsely punctured and anteriorly crenate, the middle with a slight longitudinal keel; the sides posteriorly raised into a long tubercle, opposite to which, on the disc, are two, very slight, transverse elevations: scutellar process with its posterior margin broad, flat, rounded and deeply punctured, the undercurved sides with a yellow vitta under the tubercles, indistinctly continued forwards. *Elytra* as long as the abdominal segments, black-brown, finely crenulate, anterior margin black (very often hyaline with black nerves, *Sahlb.*, l. c.). *Wings* hyaline, whitish, slightly infumated towards the apex. *Sternum* black, silvery-sericeous, with a wide, deep, longitudinal channel, anterior to each 1st coxa a broad, ferruginous vitta; sides next the pronotum broadly nude, with a posterior silvery streak. *Legs: coxæ* and *trochanters* all pale ferruginous beneath; *thighs*, 1st pair black, broadly bright ferruginous beneath; 2nd and 3rd pairs dull ferruginous, paler beneath; *tibiæ* and *tarsi* dark ferruginous. *Abdomen* black, connexivum yellowish, with a black line on the margin; under-side silvery-sericeous, disposed somewhat in vittæ; the 6th segment beneath, posteriorly and on the sides yellowish, the posterior margin deeply and roundly excised. *Genital segments* underside;—the 1st, at the base, compressed at the sides, yellowish, the posterior margin in the middle straight, then carried on to a point at the sides of the 2nd, which is dark ferruginous, convex, posteriorly rounded, and with a distinct, much-projecting tubercle near its base.

Length, 4½ lines.

(♀. Tubercles of the pronotum more obsolete, 6th segment of the abdomen beneath, posteriorly slightly emarginate, and the 1st genital segment obliquely depressed at each side. *Sahlb.*, l. c.)

A single male in Dr. Power's collection taken on Moss Morran, near Balmuto, Fifeshire, August 21st, 1872.

This species is like *G. lacustris* in form and size, but differs in the colour of its antennæ, its rufous pronotum, with the yellow streak on the undercurved sides distinct only posteriorly, its anterior legs more black, the 1st joint of the posterior tarsi shorter, the form of the genitalia, &c.

NOTE.—The name of the genus *Hydrometra*, founded by Latreille on *Cimex stagnorum*, Lin., was misappropriated by Fabricius to his genus *Gerris*, with the species of which (except *stagnorum*) it had nothing to do, the structure being essentially different. Most authors have adopted this error; Burmeister, seeing the incongruity, re-separated *stagnorum*, but instead of restoring Latreille's generic name, he coined a new one—*Limnobates* (*cf.* Pascoe, Ann. and Mag. Nat. Hist., Feb., 1868, and Dallas, Zool. Record, v, 353, 1869).

CORIXINA.

CORIXA PROMINULA.

Corisa prominula, Thoms., Opusc. Ent., i, 38, 20 (1869).

Above fuscous-black with obscure yellow markings. *Head* obscure-testaceous, in front evidently produced, posteriorly a short, projecting keel, with a row of punctures on each side of it; facial depression very slight and flat, extending beyond the angles of the eyes. *Pronotum* short, with six pale lines. *Elytra: clavus* with fine, pale, straight lines, at the base oblique but not widened, the rest often abbreviated inwardly; *corium* with irregular pale lines, often confluent externally, traversed by two longitudinal black lines, one close to the anterior margin and one near the clavus broad posteriorly: marginal channel obscure testaceous, on the basal half darker and very narrow: membrane-suture pale; *membrane* broadly black on the margins and in the middle, otherwise with irregular pale markings. *Sternum* pale. *Legs* dusky-testaceous, posterior tarsi clearer, with black cilia: ♂, *tibiæ*, 1st pair, short, tumid; *palæ* broadly cultrate, rounded externally and prolonged to a point. ♀, *tibiæ*, 1st pair not tumid; *palæ* narrow-cultrate. *Abdomen* pale beneath, base black in ♂. Length, 2¼ lines.

Like *C. fossarum*, but differs in being rather smaller, narrower, sides more parallel, head more prominent in front, marking more obscure, &c. Also resembles *C. Scotti*, but differs in being distinctly larger, the palæ of the ♂ much broader, &c.

This species, found by Mr. H. Jenner-Fust, in the Isle of Harris, Hebrides, in 1872, I at first sight took to be *C. fossarum*, but afterwards, finding it differed, I kept it separate. It has lately been identified by Dr. J. Sahlberg as *C. prominula*, Thoms., and, as it agrees with the description, I bring it forward as a new British species.

Lee: *December 27th*, 1875.

On the names of some British species of Pselaphidæ and Scydmænidæ.—Some few months ago, I sent to M. F. de Saulcy, of Metz, several British species of these families, about whose correct names I entertained some doubts. M. de Saulcy has been for some time engaged on a revision of the European species of these groups of *Coleoptera*, and the first division of his work has already been published, so that his opinions are of considerable importance. I therefore give below the names under which he returned my specimens, and have added some remarks of my own, which may help, perhaps, to throw some light on M. de Saulcy's names.

1. *Tychus niger*.—This specimen is a variety small in size and with red elytra, and is possibly the form recorded formerly by Mr. Crotch in his Catalogue of British *Coleoptera* as *Tychus ibericus*.

2. *Batrisus venustus*.—I had some doubts whether this name was correct for our species, as some of the continental species are extremely similar.

3. *Bryaxis cotus*, n. sp.—This is the species taken in this neighbourhood by me, and distributed under the name of *Bryaxis Lefebvrei*; but, as I had become convinced that it was thus named by error, I sent it with the MS. name *Bryaxis cotus* to M. de Saulcy, who confirms my opinion of its being as yet uncharacterized, and will describe it under the name I have proposed. *B. Lefebvrei* was originally recorded as British in Mr. Waterhouse's Catalogue of British *Coleoptera*; and, though I have not seen the individual insect to which Mr. Waterhouse's record referred, I think it very probable that it will also be found to be a specimen of *Bryaxis cotus*.

4. *Euplectus Abeillei*.—My two individuals, one of which is thus named by M. de Saulcy, I captured some years ago at Mickleham.

5. *Euplectus piceus*.—I have found this species in the New Forest, and in one or two localities near London.

6. *Euplectus Duponti*.—I am indebted to Mr. R. Lawson for this species: it was found by him not very long ago near Scarborough.

7. *Euplectus punctatus*.—My only individual of this species was given me some years ago by Mr. Crotch, under the same name as that assigned to it by M. de Saulcy.

8. *Trimium brevicorne*, ♂.—Taken by Mr. Lawson at Scarborough,

9. *Trimium brevicorne*, ♀.—Taken by Mr. Lawson, and named in British collections as *Trimium brevipenne*.

10. *Scydmænus Sharpi*.—For this species I am also indebted to Mr. Lawson; the few specimens of it taken by him have been named, I believe, *S. rubicundus*.

11. *Scydmænus glyptocephalus*, De Saulcy.—This is the insect given me by Mr. Crotch as *S. carinatus*, and recorded by me under that name in my Catalogue of British *Coleoptera*.

12. *Scydmænus Sparshalli*.—This individual I had considered to belong to the species described by Mr. Rye as *Scydmænus præteritus*.

13. *Scydmænus helvolus*.—This species was named *S. Sparshalli* in my collection, but I have for long suspected that there existed a confusion as to this name; and Mr. Rye, in describing *S. præteritus*, has pointed out the evidence which leads him to consider that this is really the *S. Sparshalli* of Denny: whether De Saulcy be, or be not, acquainted with Mr. Rye's opinion, I do not know.—D. Sharp, Thornhill, Dumfries; *January 27th*, 1876.

[I have at once sent M. de Saulcy a copy of the No. of this Magazine containing my observations above mentioned; and will make known his reply.—E. C. R.]

Note on the Trachys nana of British collections.—A recent examination of various species of *Trachys* from the south of Europe, has led me to examine also the *T. nana* of British collections; and, much to my astonishment, I find that our so-called examples of that species do not in any way agree with the description of Fabricius's insect of that name, as recognised by modern authorities on the *Buprestidæ;* they have not a (comparatively) large triangular scutellum, a distinct lateral carina to the elytra starting from the humeral callus and running parallel with the margin almost to the apex, nor is the thorax deeply foveolated near the anterior angles. Our species has a small pointed scutellum, is without lateral carinæ to the elytra, and without deep foveæ near the anterior angles of the thorax; it is evidently to be referred to *T. pumila*, Ill., a variable and widely distributed species, occurring in France, Spain, Italy, Germany, Greece, Algeria, &c., and, according to Marseul (Mon. des Buprest., L'Abeille, ii, 515), is attached to *Marrubium vulgare*. I have received *T. pumila* in numbers from Mr. J. J. Walker, who has found it at Corfu and Gibraltar; in England I believe it has only (as yet) been found at Mickleham.

Stephens (the introducer of the species into the British list) in his "Manual," says of *T. nana*, "elytra, within the margin a short lateral ridge," as that species should have; but *T. nana* does not exist (as the "Manual" leads one to infer) in his collection at the Brit. Mus., as I have satisfied myself by examination, so I think the record (and locality, "Coombe Wood") must be considered erroneous. Our species is identical with examples labelled *T. Pandellei*, Fairm., in the Brit. Mus. Europ. coll., to which species, however, it of course bears no resemblance.

It is rather odd that two of our three British species of *Trachys* should have been erroneously recorded, viz., *T. pygmæa* (= *troglodytes*) and *nana* (= *pumila*).—G. C. Champion, 274, Walworth Road, London, S.E.: *February 9th*, 1876.

Notes on British Terebrant Hymenoptera.—The under-noted *Cynipidæ* may be added to our lists:—

Aphilothrix autumnalis, Hartig, Germs. Zeits., 1841, p. 336; Mayr, Die Mitteleurapäischen Eichengallen, p. 24, pl. iv, fig. 31. The galls of this species I have found in the autumn in Cadder Wilderness, but have not yet succeeded in rearing the flies.

Andricus æstivalis, Giraud, Verh. z.-b. Ges. Wien., 1859, p. 356; Mayr, *l. c.*, p. 55, pl. vi, fig. 79. I have an *Andricus* taken on 20th May at Ardlui, Loch Lomond, which must I think be either the above or a new species. The galls appear on the male catkins of the oak.

Ceroptres arator, Hartig, *l. c.*, p. 343, I have bred from some galls of *Andricus noduli* got in Kenmuir Wood.

Ægilips abietina, Dahlbom, Onych. och Callasp. Syn., tab. No. 25; Thomson, Öfv., 1861, p. 412. Taken in Inverness-shire. *Æ. subulifera*, Thomson, *l.* c. Taken in the same locality. The species of this genus are rather difficult to determine, and hence I am a little dubious if I have named these two species correctly (Mr. Marshall, however, thinks that I have done so).

Tetrarhaptra tetratoma, Thomson, *l. c.*, 399, 8. From Glasgow districts, where the remaining species were also taken.

Pentacrita pentatoma, Thomson, *l. c.*, p. 398, 6. *P. albipennis*, Thomson, *l. c.*, p. 399, 7?

Eucoila tomentosa, Giraud, *l. c.*, 1860, p. 144, 28.

Sapholytus apicalis, Hartig, *l. c.*, p. 349. Bred from galls of *Andricus noduli*.

Allotria melanogaster, Hartig, *l. c.*, 1840, p. 200, 8; Giraud, *l. c.*, 1860, p. 129, 6. If this species be really distinct from *A. halterata*, Thomson (a species recorded as British by Mr. Marshall, in the "Annual" for 1874), it may be added to our lists; but, from observations I have made, I believe it is merely *halterata* with the wings fully developed. The typical *halterata* occurs with the wings in a rudimentary condition, the stumps only being present. Now, last summer I caught a specimen which agrees perfectly with *halterata* in size and coloration, but with one wing fully developed, and the other represented by the stump as in Thomson's insect; and as this specimen quadrates exactly with the description of *melanogaster*, it seems to me clear that the one must be merely a form of the other. I feel quite satisfied that the wings are not torn off in the process of capturing; with all the specimens that I have taken, I noticed before touching them that the wings were not present in their entirety. Thomson does not describe *melanogaster*, nor Hartig *halterata*. If I am correct in what I say, the last mentioned name must be quoted as a synonym of *melanogaster*, Hartig's name having the priority. In the collection of the Rev. T. A. Marshall, there is a specimen of *halterata* scarcely half the usual size, but apparently it is truly that insect. It appears to me, from the above discovery, highly probable that the other sub-apterous insects of this genus may be only forms of other species with the wings torn or dropped off; for, judging from my specimens of *halterata*, it seems likely that they had the wings fully developed when they assumed the perfect state.

The following *Tenthredinidæ* may also be included in our lists:—

Nematus consobrinus, Vollenhoven, Tidjs. Ent., 2nd ser., vi, p. 237, pl. 10. This is the gooseberry-feeder mentioned in vol. x, p. 21, of this Magazine. It has since been bred by Mr. J. E. Fletcher of Worcester.

N. albipennis (Klug), Hartig, Blatt- u. Holzw., 196, 22; Thomson, Hymen. Scand., i, 88, 8. Dalry, Dr. Sharp.

N. abietinus, Dahlbom, Consp., 9, 86 (1835), = *N. abietum*, Hartig, *l. c.*, 210, 44, pl. iv, figs. 11, 12, &c.; Thomson, *l. c.*, 106, 31. *Tenthredo pini*, Retz, De Geer; *N. Saxesenii*, *N. compressus*, Hart.; *N. hospes* and *N. limbatus*, Dbm., are synonyms. Rannoch.

N. pallidiventris, Fallén, Acta Holm., 1808, 120, 63; Thomson, *l. c.*, 110, 35. Cadder Wilderness.

N. punctulatus, Dbm., Consp., 9, 89; Thoms., *l. c.*, 117, 42, = *N. leucotrochus*, Hartig, *l. c.*, 193, 18.

N. crassus, Fallén, *l. c.*, 106, 41; Thom., *l. c.*, 123, 49. Not rare in England and Scotland on aspens. It is doubtfully distinct from *N. vicinus*, Lep., and *cæruleocarpus*, Hartig (which is, I fancy, the same as *brachyacanthus*, Thoms.), recorded in Stephen's Illustrations and the Brit. Mus. Cat.

N. hyperboreus, Thomson, *l. c.*, 127. Braemar, Dr. Sharp.

N. striatus, Hartig, *l. c.*, 191, 14; Thom., *l. c.*, 131, 57. Bred from *Salix fusca* growing at Possil Marsh.

N. humeralis, Zetterstedt, Ins. Lapp., 351, 41; Thoms. *l. c.*, 132, 5. Worcester, Mr. J. E. Fletcher. This is, I feel certain, merely a black variety of *N. striatus*, and hence can scarcely be regarded as an addition, but its occurrence in this country is of interest.

N. Zetterstedti, Dahlbom, Clavis, fig. 5; Thoms., *l. c.*, 147, 78, = *N. miniatus*, Hartig, *l. c.*, 129, 12. Braemar, Dr. Buchanan White.

These are all the additions that I can make at present to this genus, as, until Stephen's collection has been revised, it is impossible to say what species are mentioned by him, his descriptions and those of St. Fargeau being quite valueless.

N. (*Crœsus*) *latipes*, Villaret, is, I believe, British. I have not seen the perfect insect, but the larva was sent me from Lancashire (I think it was from there, but have quite forgotten the exact locality, and by whom it was taken), and this larva I have still in my possession, preserved in spirits, and it is so distinct that there can be no mistake as to the species.

Macrophya albipunctata, Fallén, *l. c.*, p. 104, 37; Thoms., *l. c.*, 254, 8. Rannoch. Thomson quotes *M. crassulus*, Klug, as a synonym of *albipunctata*, but this is an error, as any one can see by comparing the two descriptions.

Strongylogaster delicatulatus, Fallén, = *Selandria phthisica*, Vollenhoven, Tidjs. Ent., 2nd ser., iv, p. 123, pl. 3, fig. 4.

[*Limneria croceipes*, Marshall (*ante* p. 194). The locality for this species is Kingussie, not Cadder Wilderness. *Eumesius crassicornis* was also taken at Kingussie. *Bassus flavolineatus*, Gr., I have bred from the pupa of a *Syrphus* got on the banks of the Kelvin.]—P. Cameron, Jun., 136, West Graham Street, Glasgow: *February*, 1876.

On the species of Nematus described in the Entomological Magazine.—The following are the determinations (so far as I can make them) of the *Nemati* described by Mr. Newman in the Entomological Magazine.

Nematus dimidiatus, vol. i, pl. 1 (larva), = *Cladius viminalis*, Fall.

Pristophora cincta, iv, p. 259, = either *Nematus quercûs* or *Erichsoni*, Htg.; which, I cannot determine, as the description will fit both.

Nematus tibialis, iv, p. 260, = *N. hortensis*, Hartig, Blatt- und Holz-wespen, p. 197. As both descriptions were published in the same year (1837), I do not know exactly which name should be adopted.

Thomson (Hymen. Scand., i, p. 144) describes *hortensis* as having the head black, with the exception of the mouth, the feet totally pale testaceous, and the abdomen black only at the base; while, according to Hartig, the vertex only of the head is black, the posterior tibiæ and tarsi are of the same colour, and on the dorsal surface of the abdomen there is a broad black band on each segment. It is quite evident that the learned Swede has described a species quite distinct from the true *hortensis*.

Euura gallæ, *loc. cit.*, cannot be recognized.

E. cynips, *l. c.*, is in the same predicament, but it may be, perhaps, *N. saliceti*, Fall., = *mucronatus*, Htg.—Id.

Note on Cladius Drewseni, Thomson.—I have detected some specimens of *Cladius Drewseni*, Thomson, Hymen. Scand., i, p. 73, 4, among a number of insects (from England) belonging to Messrs. T. A. Marshall, McLachlan, and Marsh; and I believe I have Scotch specimens in my own collection. We have now, in Britain, all the North European species of *Cladius*.

Cladius æneus, Zaddach, might reasonably be expected to occur in this country. It is very like *C. Drewseni*, and the larva feeds on *Salix pentandra* and *triandra*.

C. tristis, of the same author, is, I have no doubt, identical with *C. Brullæi*, Dbm. The specific distinctness of *C. tener*, Zadd., can scarcely be decided until the ♂ has been found.—ID.

Note on Argynnis Dia.—I have to announce an undoubtedly British specimen of this fritillary. It is a female, and was taken in 1872 at Worcester Park, Surrey, by a connection of my own, Master Wallace A. Smith. He could not identify his capture, and placed it apart by itself. Very recently, on my looking over his insects, he drew my attention to the specimen as something peculiar: he perfectly recollects making the capture, and the exact spot where it was made. I found the specimen pinned and set in beginner's fashion. Mr. Wallace Smith has never had to do with any dealer or collector; and, except things given to him by me, his cabinet contains nothing but what he captured himself.—W. ARNOLD LEWIS, Temple: *February* 14*th*, 1876.

A fortnight at Ventnor in October.—A fortnight's work at the ivy between Ventnor and St. Laurence in October sounds promising enough, but in fact last year I found its results not a little disappointing. The weather certainly was unfavourable and cold; it was also generally moonlight, and the ivy's attraction suffered perhaps from want of concentration; but, making every allowance for this, the returns were indeed meagre, considering the locality. *Phlogophora meticulosa* alone was consistent and unremitting in its attendance, poorly backed up by *Anthocelis pistacina* and *Cerastis vaccinii*. My best and, indeed, only good capture was one *Heliothis armigera* which appeared on the 19th, a night so bleak and unprofitable that I was almost beginning to look for *Dasycampa rubiginea*. It was a ♀, and I should have been grateful for two or three eggs, but in this respect I was not to be humoured. Other captures were *Agrotis saucia* (of which I amassed half-a-dozen wasted specimens), five *Epunda lichenea* (from which I obtained a few eggs—unfertilised), one *Calocampa exoleta*, three *Epunda nigra*, a few *Orthosia macilenta*, and one *Noctua glareosa* (this last quite fresh, though on Wimbledon Common it had been over nearly a month earlier). Of many common insects, such as *Agriopis aprilina*, *Hadena protea*, *Orthosia lota*, and *A. litura*, I saw no trace.

On the 20th (the last night of my stay), the weather changed. For the first time it was both dark and warm. *En route* for the ivy, I found ichneumons so common at the lamps, and was so elated by the capture of *Nonagria crassicornis* in a similar situation (the first insects I had seen at light during my stay), that I foolishly broke the charm by returning for a reinforcement of pill-boxes and pins.

Bidding farewell to the ivy, I noticed what looked like a *Notodonta* on one of the lamps; a climb revealed *Dasypolia Templi!* Now, on this esplanade there are five lamps and no more, and on these five lamps I found ten *Templi*, just two on each. Very probably there were more, as two of the lamps were difficult of inspection, and *Templi* has a decided partiality for the dark corners and the uprights. Curiously enough, on the other lamps in the town, many of them lighting the terraces which wind up from the esplanade, and not fifty yards distant, I could not detect a single specimen. This species seems rather common in the North (indeed, "live females" appear to be the principal stock-in-trade of the Barnsley Entomologists), but I believe it has always been scarce in the South, and the occurrence of ten specimens on half as many contiguous lamps is probably unprecedented.—C. J. BUCKMASTER, Sussex Lodge, Southfields, Wandsworth: *February*, 1876.

Caradrina cubicularis in February.—I took a specimen of this moth in my sitting room last night. Has its occurrence in winter been previously noticed?—C. A. Briggs, 55, Lincoln's Inn Fields: *24th February*, 1876.

Notes on the Tortrices of Pembrokeshire.—Penthina cynosbatella, L.: I took a most charming specimen of the whitest form of the var. *nubiferana* sitting on a hedge, in a lane near the sea cliffs.

Penthina marginana (*oblongana*) occurs here also, though I have seen as yet but few specimens. I am still unable to persuade myself that it is at all a rare species.

Spilonota roborana. An unexpected form of this species has occurred: I was on the look out all the season, among the immense abundance of *Rosa spinosissima* on the coast for *Sp. amœnana*, to replace my old specimens, but, to my great surprise, did not find one. *S. roborana*, however, occurred commonly among that plant, having the ordinary white ground colour of the wings strongly tinged with pink, and irrorated with grey; one or two specimens being quite suffused with the latter colour. Along with it were *Peronea aspersana*, *Sericoris conchana*, and *S. cespitana*, flying in plenty, the last named showing the rich reddish and drab varieties, such as are found on the Irish coast.

Euchromia purpurana. Stray specimens occurred in the limestone quarries, but at the end of July I found it flying commonly further down the Haven, among clover and long grass, but nearly every specimen was worn to a shadow.

Euchromia ericetana. One specimen among coarse herbage.

Sciaphila perterana?. Common on the coast and also on the shores of the Haven, and to be found some distance inland. Apparently the same species as that which is found so commonly at Folkestone, although the peculiar, almost unicolorous, whitish-grey form seems to be entirely absent here, and the connection is maintained solely by the better marked grey Folkestone varieties, and the females. Certainly mine are identical with specimens that I have received several times from Lancashire, Paisley, and other northern localities, and which have hitherto been referred to *perterana* with considerable doubt, from their larger size. Pembroke specimens, however, vary in size, from that of the Folkestone examples to that of *Sc. Penziana*. The males are all grey—darker or lighter—with fairly distinct markings; and some of them have a dark costal triangle like that upon the fore-wings of *Peronea sponsana*, but the females are very handsome,—white, more or less irrorated with grey flecks, and with dark grey, well-defined markings, that in some individuals almost cause them to rival *octomaculana* in beauty. In length and form of wings, and in the great difference between the sexes, this species is closely allied to *Phaleroptera ictericana*. Its larva feeds in blossoms of composite plants—*Chrysanthemum*, *Crepis*, *Hieracium*, *Bellis*, &c., in May and June. It turns down the ray florets of *Chrysanthemum leucanthemum*, to form a habitation, as artistically as the spiders which lurk upon the same flowers.

Capua ochraceana. Rather common along the edge of a wood of mixed growth, but without, I think, any hornbeam. Its food plant is still a puzzle.

Ephippiphora signatana. Scarce; only obtained among blackthorn, on which I expect that the larva will be found to feed.

Dicrorampha acuminatana. I found the May and June brood here quite commonly. It is well known on the continent to be double-brooded, but, as far as I

know, had only been previously taken in this country in August. Unfortunately, I had no opportunity of ascertaining whether it appeared again at that time here. The females were of an unexpectedly rich brown colour, showing, when fresh, but little trace of the purple scales, so conspicuous in the male. Along with this species appeared *D. plumbagana* and *plumbana* of course, also *Halonota cirsiana* in plenty; *Cochylis stramineana*, and the lovely red varieties of *Chrosis tesserana* which are so little known on the continent.

Dicrorampha tanaceti. This species turned up, to my great surprise, rather commonly at Tenby, *not* among *Tansy*—there appearing to be none in the immediate neighbourhood—but sitting on and flying among large plants of *Heracleum sphondylium*. To me this is mysterious.

Dicrorampha consortana. A few specimens occurred in the quarries.

Catoptria cæcimaculana. I am happy to have *found* the district in which this species is pretty common, and it is *not* on the chalk hills of the South of England. The mountain limestone of this district, however, seems to suit equally well all those species that can stand the *climate*. The best localities are the extensive quarries which skirt some of the branches of the Haven, the broken and irregular soil of which is covered in part with a luxuriant growth of furze, blackthorn, blackberry, dewberry, and hemp-agrimony, and in part with vast masses of red valerian (*Centranthus ruber*), and the more scattered abundance of wild flowers which love such a soil. Of these, *Centaurea nigra* is evidently the "peculiar vanity" of *cæcimaculana*, and in its seed heads I expect that the larva will be found, but pressing business and distressing weather prevented my visiting the quarries in the autumn, and the solution of this question is therefore deferred for the present. As a rule, this species is exceedingly constant in colour and markings, but I met with two specimens in which all the markings and irrorations are ochreous, instead of the usual brownish-grey.

Eupœcilia atricapitana. As usual, distributed all round the coast among ragwort, but nowhere common.

Eupœcilia hybridella. Occurs in the most sheltered hollows in the quarries, does not fly freely till dusk, and is, therefore, not very easy to obtain. Not so white as specimens from the chalk, but most exquisitely tinted with rose colour.

Eupœcilia affinitana. Common on the narrow strips of salt marsh along the margins of the Haven, occasionally flying up in the sunshine, along with *Sericoris littorana*, but more frequently to be obtained at sunset, when every few yards of marsh will sometimes produce a specimen. I have known it, however, for some inexplicable reason, quite lively in the middle of a cool windy afternoon.

Eupœcilia vectisana. Very rare on the strips of salt marsh which *affinitana* loves, but apparently attached to more sheltered spots. In a little bit of marsh only a few yards in extent, but sheltered by reeds, I found it in abundance. Of these two species I only met with the June brood, being prevented from collecting in the autumn.

Eupœcilia rupicola. Apparently distributed all over the neighbourhood, and in some places common. Its food plant, *Eupatorium cannabinum*, instead of being confined to marshy places, asserts itself in this neighbourhood, and being encouraged by the abundant moisture, even takes entire possession of the tops of hedge banks, or covers the sides with its grand masses, occupies large hollows in the sides

of hills in the quarries, and makes itself generally at home. Consequently, *rupicola*, faithfully following its fortunes, turns up in unlooked for places as an agreeable surprise. From the coarse scaling of its wings, it however very soon becomes worn; and as it only condescends to fly for about half-an-hour—from five to half-past—in each afternoon, the capture of a really fine series is not easy. It is possible on fine days to turn out a specimen or two by disturbing the *Eupatorium*, but after its half-hour of very brisk flight around the plants is over it is hardly possible to find. —Chas. G. Barrett, Pembroke: *November*, 1875.

On the egg of Cymatophora ridens.—I have been greatly interested in examining the egg of this species, kindly sent me in May last by Mr. G. C. Bignell. Had he not told me to what species it belonged, and had not the larva on its appearance fully convinced me that my friend had made no mistake, I should have set it down for the egg of a Geometer, not of a *Noctua*.

Its form is longish, cylindrical, but with one end stouter and fuller than the other; the shell glossy, covered all over with irregularly-triangular reticulation, arranged in longitudinal rows not always well defined; the colour, till just before the hatching of the larva, pale vermilion red.—J. Hellins, Exeter: *November 17th*, 1875.

Note on Syricthus alveolus.—I hardly know if it is worth recording that a larva, reared from an egg deposited by a butterfly of the type form, has resulted in an imago of the variety *lavateræ*, Haw.—Id.

Description of the larva, &c., of Agrotera nemoralis.—I am indebted to the kindness of Mr. H. Tugwell for eggs of this species, which reached me on the 4th of last June. Unfortunately, I was not able to place the larvæ, immediately on their being hatched (June 8th), upon their food, and from this cause most of them afterwards came to grief; they are so small and delicate that they cannot bear moving. As soon as I could, however, I procured hornbeam leaves and shoots, having been informed than the moths were all captured off a hornbeam hedge, and not knowing in what condition they would be most acceptable, placed leaves in all stages—young, matured, and withered—in the bottle with the larvæ. Had I been able to let the larvæ at once have access to leaves just unfolded from the bud, I have little doubt all would have gone well. As it was, their strength seemed gone, and they died off without feeding, till I thought I had not one left; luckily this was not the case, for after waiting a few days I examined the food again carefully, and found I had one larva alive and doing well; this fed on and throve, till about July 20th, when it spun up for pupation.

How the moth would deposit its eggs in a state of freedom, I cannot say: those sent to me were laid singly on the sides of the pill-box; they were very soft in appearance, and though somewhat oval in outline not regularly so, very flattened, the shell finely but unevenly pitted all over, almost translucent, in fact looking like tiny spots of grease.

The newly-hatched larva has the head remarkably large for its size, and has longish bristles on the usual warts; it is semi-translucent, pale greenish in the body, the head pale brown. When it has fixed itself with a few silken threads between two ribs on the under surface of a young leaf of hornbeam, it is at this stage almost invisible; and for some time it lives in this way under a protection of silken threads,

the head still keeping its relative size, growing bigger as the body grows, until the larva is about half-grown; then it begins to feed between united leaves, and the figure assumes other proportions. When full-fed, the larva is about three-quarters of an inch long, slender in figure, the head flattish and as wide as second segment, the body stoutest about seventh, eighth, and ninth segments, thence tapering both to the head and the tail; the anal pair of feet stretched out behind; the skin very glassy and glistening though somewhat wrinkled: the colour of the head pale orange-brown, the antennal papillæ paler still and tipped with black, the mouth brown, the ocelli black, and a black spot at some distance behind them on the side of the head; the back as far down as the spiracular region is of a rather brownish-olive green, the dorsal line darker olive green: an undulating row of internal darker blotches runs along in an interrupted manner a little above the spiracles, showing plainly through the translucent skin; the spiracles very small and inconspicuous, being of the ground colour ringed with brown; below them the rest of the side, and the belly and legs, are of a uniform tint of very pale watery-olive greenish; there is a fine hair from each tubercular situation.

By the end of the third week in July, that is after feeding about six weeks, the larva spun up, forming for itself a cocoon in a very clever manner from a leaf of hornbeam; taking as its standpoint a spot nearly in the centre of the midrib, equidistant that is from the tip of the leaf and the footstalk, and cutting through the midrib itself at that point, but leaving about one-eighth of an inch of the leaf uncut to serve as a footstalk to its cocoon, it proceeded to make two semi-circular cuts towards the tip of the leaf, but at a slight inclination towards the left, so that further on the midrib was again severed by the right cut, and the place where the two cuts met was on the left edge of the leaf (looking at it, that is, from above) not very far from the tip; using then the midrib of this semi-detached circular piece as the backbone of its structure, the larva bent down the two sides of the piece, and fastened them together all along their edges; the cocoon thus formed is rounded along the upper outline, and with its sides rather flattened till they meet in the sharp lower edge.—ID.

Description of the larva, &c., of Pterophorus dichrodactylus.—On June 8th, 1875, Mr. John Sang, of Darlington, very kindly sent me several larvæ of this species, in various stages of growth, mining within stems of *Tanacetum vulgare*.

As soon as their food began to wither, fresh sprays of tansy were provided for the larvæ, which, often as this occurred, readily left the old stems to commence mining into the fresh ones.

The mouth of the mine is generally between the axil of a leaf and the stem, with a few silk threads spun from one to the other, just above it, among which the dark olive or blackish frass becomes entangled, as the larva pushes it out from time to time in its course head downward; the quantity there increases more and more, until at length the accumulation becomes very conspicuous, and betrays the presence of the larva.

While immature, the larva is darker in its colouring than it afterwards becomes; it is blackish-green when not more than a quarter of an inch long, glaucous-green with grey stripes when about three-eighths in length; but, when full-grown, the larva measures a little more than half an inch, its figure moderately slender, cylindrical, and tapering a little from the third segment to the head, which is rather rounded;

it tapers also from the eleventh segment to the end of the thirteenth: the segmental divisions are well defined on the back, and rather deeper on the belly; the legs all tolerably well developed.

The colour of the head is very pale, either of a brownish-yellow or greyish-yellow, semi-pellucid and shining, the ocelli large and blackish, the mouth blackish-brown; on the second segment, is a shining plate of the same colour as the head, bearing minute blackish dots, and another plate of similar tint is on the anal tip; the rest of the back is either a lively green, or else a rather subdued transparent light green, bearing a dark olive brownish pubescent or bristly dorsal line; a naked stripe of opaque greyish, or whitish-grey, follows at a short interval, on which the minute tubercular black dots are visible; then comes the sub-dorsal thinner stripe of the trsnsparent greenish ground colour, and then another naked thin stripe of greyish, which is succeeded by a broad lateral band of the ground colour, but so thickly covered by a minute bristly kind of brown pubescence as to assume an olive hue, and just within its lower margin are the circular brownish-red spiracles, outlined with black, and surrounded with a ring of naked ground; beneath them runs an inflated and puckered stripe of opaque greyish-white, relieved below by a line of the brown pubescence; the belly and all the legs are of the pale greenish-ground colour, and but very slightly pubescent; on the belly, between each pair of the anterior legs, at their base, are two black spots; the ventral legs tipped with dark brown.

The pupa, which is attached by the tail to the stem, or to a leaf, is half an inch in length, slender, with a longish beak in front projecting at a slight angle downwards from the head, pointed at the tail; the wing-covers of moderate length, well developed, and the ends of the leg-cases projecting free from the abdomen: its figure, in repose, is a little curved, so as to be concave on the back. In colour it varies, some examples being very pale greenish, others light pinkish-grey, while others again are dark reddish-grey: in the pale green variety the characteristic darker markings, though partially present in deeper tints of greenish, are more tenderly rendered than in some of the greyish varieties, which are marked as follows: the beak is white above, and black at the sides; on the thorax a blackish-brown dorsal stripe widens and then narrows, and from thence passes down of uniform width to the tail; on the thorax it is margined with a line of white; the sub-dorsal line is blackish-brown and rather interrupted; between this and the dorsal stripe, on each segment, are double dark brown streaks a little divergent; these are strongly marked on the anterior segments, but more faintly, by degrees, on the hinder ones; at an interval below the sub-dorsal, another brown line occurs, rather interrupted; the lateral line is white, bordered beneath by a stripe of black; the ventral surface of each segment has a broad central somewhat squarish mark of light brownish-grey, and a fine sub-ventral line of similar tint much interrupted; the wing-covers brownish-grey with whitish rays.

The moths appeared at intervals from the 28th June to the 5th July.—Wm. Buckler, Emsworth: *January 28th*, 1876.

Description of the larva, &c., of Pterophorus microdactylus.—To Mr. Wm. H. Grigg, of Bristol, I have been indebted for the good opportunity afforded me of studying this interesting plume larva, by his very kindly sending me a number of examples on the 26th July, 1875, which, two days before, he had found in the flowering stems of *Eupatorium cannabinum*.

Mr. Grigg also acquainted me with his having taken, at the same time and place, nine fresh specimens of the moth, at the very spot where they occurred plentifully in May of the previous year,—hence he inferred the insect to be double-brooded.

I found it no easy matter to keep the stems, in which these larvæ were living, from either drying up or turning mouldy; from these mishaps, and from the larvæ refusing to enter the fresh stems provided for them, most of the number died:—however, I was at length well pleased at being able to breed three specimens of the moth on August 8th, 9th, and 19th, and a fourth a fortnight later, thus satisfactorily proving their identity.

Most of these larvæ were mining, singly, within the stems, near to the axils of the leaf stalks, though three or four had their mines situated midway between the axillary branchings near the top of the plant; the small hole at the entrance of a mine is not very readily detected, for although frass is probably extruded from it, especially at first, yet I found none hanging outside the entrance, and only a fine dust at the bottom of their cage gave evidence that a small quantity must occasionally have fallen out of the holes; the mines always appeared lightly filled up from within, just level with the surface of the stem, and so the orifices not contrasting much in colour, were not very conspicuous from being no more than one-sixteenth of an inch in diameter.

The youngest larva examined I found to be just one-eighth of an inch long, and possessed of all the details of form, colour, and other characteristics thst so well distinguish this species of *Pterophorus* from any I have as yet seen, inasmuch as it is furnished with rough points or hooks, in many respects much like those we know so well on the pupæ of *Cossus* and of *Hepialus*; doubtless these are both for support and progression within the very tough stem where it resides.

The full-grown larva is one quarter of an inch in length, plump in proportion, in general figure somewhat cylindrical, but tapering forwards to the head, which is smaller than the second segment, the last three segments also tapering to the anal tip; the anterior legs are but little developed, while the ventral and anal legs are so exceedingly small as to be with difficulty detected even with a lens; the segments are well-defined, the first third of each, after the thoracic segments, is clean cut backwards with an upward slope, and the summit of this slope is crested with a row of minute rough points, or blunt hooks, extending unbroken across the back, rather near towards the spiracular region; on the middle portion of the remainder of each of these segments is a broadish oblong transverse band of the rough points dorsally divided by a naked, or nearly naked, interval of smooth skin; similar points occur also across the thoracic segments, but in a narrower shape, and on the second they fill up the usual form of plate there; those on the twelfth segment, and the front of the thirteenth, are very much coarser, and closely aggregated.

The colour of the shining head is light yellowish-brown, tinged with deeper brown on the crown of each lobe, the ocelli and mouth darker brown again; the body is of a slightly livid flesh colour, becoming a trifle paler and yellower on the three or four hinder segments; a distinctly paler dorsal line is visible, and bisects both the bands of blackish rough points, and the anterior plate of them, though on this last it is a mere fine thread; the skin generally is smooth, and glistens a little; the spiracles are circular, a trifle raised, wart-like, brown in colour, with a whitish

centre; above each spiracle is a wart-like tubercular slight eminence; on the sloping surface, in front of the segments, are a pair of transversely elongate oval black-brown rough spots; the anal tip is dark brown.

On August 2nd, I opened a stem and found the pupa lying in a small cleared space just above the middle of the mine, its head uppermost in a slanting direction towards the entrance, its tail steadied by a few threads spun on some frass, of which the mine below was full, there was some also above, and a little about the entrance, dry and mixed with silk: the pupa itself was a quarter of an inch long, rather slender, the thorax rounded and well-defined, emitting a few bristly hairs, the head and eyes rather prominent, wing-covers long, the leg cases reaching to the penultimate abdominal ring from which they hung free; on the abdomen were sub-dorsal, lateral, and sub-spiracular rows of blunt hook-like processes, in pairs, those on the last ring the most projecting: the whole surface rather glistening, and the colour a dark bronzy-green.—ID.

Sphinx convolvuli at Epsom.—As I have seen so many instances of the occurrence of *Sphinx convolvuli* in 1875 noticed in your Magazine, it may not be uninteresting to your readers to give four more. On the 17th September, a beautiful specimen was brought me by a gardener, who took it on some palings close by; another was sent me on the 23rd September by some gentlemen, who caught it while smoking in a verandah; a few days after this, two more specimens were seen flying round a holly tree on the lawn.—A. V. JONES, The Shrubbery, Epsom: *January 24th*, 1876.

Note on sugaring.—I think your correspondent, Mr. W. Sandison (*ante*, p. 207), should have had more than one evening's trial before publishing his experience of sugaring near ivy when in bloom. He says, "the night was peculiarly favourable for the trial," &c. He ought to have stated if there had been rain during the earlier part of the day, or if a heavy dew were on the ground; as it is well known that flowers saturated with wet lose their attraction for insects. I am led to suspect this was the case, as Mr. Sandison says he only found five or six moths on the ivy, whilst they occurred in profusion on the sugared sticks. His theory would have been much more conclusive had the moths been plentiful on the ivy flowers, *as well* as on the sugar, for of course, if the flowers were wet, the greater probability of the moths being attracted to the sugared dry sticks placed on the ground by your correspondent.—GEO. T. PORRITT, Huddersfield: *February 4th*, 1876.

Capture of living Hemiptera, natives of the Cape of Good Hope, in the London Docks.—Early in September last, the brother of a friend of mine observed, upon a piece of old sail at the river entrance of these docks, some creatures in motion, and having procured a boat hook or an instrument of a similar kind, he succeeded in landing the fugitives—three in number. They were handed to me, and I soon ascertained they were the *Cryptacrus pinguis*, Germ. They appeared to be as healthy as though they had been snatched from off their food plant, and had evidently fared well on their passage hither. What they could have subsisted upon is a mystery, as the vessel in which they are supposed to have come, either the "Princess of Wales" or the "Antipodes," brought only the usual cargo of hides, tallow, wool, &c., from

the place. One of them since lived for six weeks upon a very liberal allowance of blotting paper, saturated with water from time to time.—JOHN SCOTT, Lee: *13th January*, 1876.

Von Salis Marschlins: another addition to Hagen's Bibliotheca.—To the three references of insect literature ascribed to this writer in Dr. Hagen's invaluable work, must be added the following, which I stumbled on in Anthony Aufrere's translation from the German (1795) of "Travels through various provinces of the Kingdom of Naples in 1789, by Charles Ulysses of Salis Marschlins," pp. 102 and 103. The original work I have been unable to see. In speaking of the two islands situated at the entrance of the outer harbour of Taranto, called "Chærades" (obviously a misprint for Chœrades) by Thucydides, afterwards "Electrides," and then Santa Pelasgia and Sant' Andrea, he gives the following results of an excursion to the former of them:—"In the meanwhile I hunted for insects, or looked for shells upon the shore. "Of the former I found only these few. Scarabæus sticticus; Scarabæus hirtellus; "Silpha atrata, and the following Silpha, which I could not find either in Linnæus "or Scopoli, the only entomological books to be met with at Taranto. Silpha tota "atra, opaca, sutura nitente, linea unica elevatiuscula, subtus nitidissima, thorace "subdentata, antennis extremitatibus fuscis; if not otherwise described, it might be "called Silpha Chœradica.

"Chrysomela speciosa; Cimex Hyosciami; Papilio Algira; Papilio rubi; Pha-"læna geometra undulata; Phalæna geometra tota testacea; Phalæna Tinea "Colonella; Empis pennipes, and Tipula rivosa."

It may be of interest to Conchologists to note that this work contains an appendix, pp. 435—513, with four coloured plates (vi—ix), entitled "A Catalogue of such Shells" [85 species] "as came to my knowledge out of the sea, that bounds the Kingdom of Naples," in which the literature of the subject is reviewed, and the following new species described: *Patella scissa*, p. 449, pl. vi, fig. 1, *Conus humilis*, p. 454, *Murex fusiformis*, p. 463, *M. Sanctæ-Luciæ*, p. 464, pl. vii, fig. 6, *Turbo flammeus*, p. 471, pl. viii, fig. 11, *Haliotis pellucida*, p. 475, *Solen violaceus*, p. 477, pl. ix, fig. 12, *Tellina fasciata*, p. 479, *Mytilus solen*, p. 505, pl. ix, fig. 5.—E. C. RYE, R. G. S., 1, Savile Row, W.: *February*, 1876.

An insect organ builder.—The Acacia groves extend (country of the Shillooks) over an area of a hundred miles square, and stretch along the right bank of the stream. The kind which is most conspicuous is the *A. fistula*, and which is as rich as any other variety in gummy secretions. I choose this definition of it from its Arabian apellation "soffar," which signifies a flute or pipe. From the larvæ of insects which have worked a way to the inside, their ivory white shoots are often distorted in form and swollen out at their base with globular bladders, measuring about an inch in diameter. After the mysterious insect has unaccountably managed to glide out of its circular hole, this thorn-like shoot becomes a sort of musical instrument, upon which the wind as it plays produces the regular sound of a flute; on this account, the natives of the Soudan have named it the whistling tree. [Schweinfurth's "Heart of Africa," vol. i, pp. 97, 98].

Proposed list of insects found in Kent and Surrey.—The Council of the South London Entomological Society have decided to attempt the publication of a list of

insects found in Kent and Surrey; and, for the purpose of showing, as fully as possible, the distribution of *Lepidoptera* in these two counties, I venture to ask for help from entomologists who are able to furnish local lists, more especially of districts above twenty miles from London.—J. Platt Barrett, 34, Radnor Street, Peckham.

Entomological Society of London: Anniversary Meeting, *24th January*, 1876.—Sir S. S. Saunders, C.M.G., President, in the Chair.

The following gentlemen were elected Members of the Council for the present year, viz.: H. W. Bates, F.L.S., A. G. Butler, F.L.S., G. C. Champion, J. W. Dunning, M.A., F.L.S., F. Grut, F.L.S., Sir J. Lubbock, Bart., &c., R. McLachlan, F.L.S., R. Meldola, F.C.S., Rev. R. P. Murray, M.A., Sir S. S. Saunders, C.M.G., H. T. Stainton, F.R.S., Prof. J. O. Westwood, M.A., F.L.S., and J. J. Weir, F.L.S. Prof. Westwood was elected President, and Messrs. J. J. Weir Treasurer, F. Grut and R. Meldola Secretaries, and W. E. Poole Librarian.

An Address was read by the outgoing President, which was ordered to be printed; and the meeting terminated by a vote of thanks to the retiring officers, Messrs. McLachlan and Janson acknowledging the same.

February 2nd, 1876.—The President, who was absent, appointed Sir S. S. Saunders and Messrs. Bates and Stainton as Vice-Presidents for the year. Sir S. S. Saunders took the Chair.

E. Y. Western, Esq., was elected a Member.

Messrs. McLachlan and Bates called attention to the habits of *Cychrus cylindricollis*, Pini, from Mont Codeno, as detailed by M. Baudi in the "Petites Nouvelles entomologiques" for February 1st. This species, which has only been found in the locality named, attacks a species of *Helix* (*H. frigida*), its long head and prothorax enabling it to penetrate the interior of the snail shell.

Dr. Sharp communicated a paper on the *Staphylinidæ* of the Amazon Valley, chiefly worked up from the materials collected by Mr. Bates. He described 487 species, of which 467 were new; but he estimated the probable number existing in the Amazon regions at 4000 to 5000. Naturally, many new genera were included. Being interrogated as to the proportion the small forms of *Insecta* bear to the larger in a tropical country, Mr. Bates said he believed it would prove the same as that which we find in Europe, but the larger forms were, of course, more commonly captured in a country where so many new and fine species were to be found.

Obituary.

Dr. Ludwig Redtenbacher.—It is with great regret that we record the loss of this well-known Coleopterist, who died at Vienna on the 8th ulto., after a long illness, in his 63rd year. The list of his works is not a long one, for he was no voluminous distributor of separate copies; nor did he habitually describe new species (though his contributions to science in that respect with regard to the voyage of the Novara, and also Kotschy's collections from Syria and the western Taurus, are well known); but his excellent descriptive treatise on the *Coleoptera* of his country, forming a thick volume of the "Fauna Austriaca," and of which he lived to see the completion of a third edition, will always keep his name familiar to European Coleopterists, if only for the sake of its instructive introductory portion. Dr. Redtenbacher was for many years Director of the Royal Vienna Zoological Museum. He retained his interest in Entomology to the last; and scarcely a month before his decease made a careful examination of types and communicated some resulting observations to this Magazine.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

Revision of the Family DELTOCEPHALIDÆ, *with descriptions of new and hitherto unnoticed British species.*

This forms the 3rd of the sub-genera into which Burmeister in his "Genera Insectorum" divided his genus *Iassus*. Of his remaining sub-genus, *Platymetopius*, there is no British representative known, although, from the wide range of one of the species (*P. undatus*), it might be expected to occur here. But by far the most perplexing of the whole group is that with which I am at present dealing; minute in size, and as unstable in colour and markings (in many of the species) as it is possible to conceive, I find it an almost hopeless task to convey anything like certainty in the descriptions as to which species is meant, although I have done my best to do so, and therefore a careful examination of the genitalia is alone sufficient to enable students to determine between them. For those who do not work with the microscope, but who do or can possess the "Verhandlungen d. K. K. z.-b. Gesellschaft in Wien," vol. xix, in which is Dr. Fieber's Synopsis of the European species, the examination of the form of the posterior margin of the last segment of the abdomen of the ♀ of the various species, and comparison with the figures which he there gives, will modify considerably the difficulties encountered on the threshold of the task, and this can be accomplished with the aid of an ordinary lens. These insects are most generally met with by sweeping among heath, or in meadows, or on the margins of fields and woods, and in some instances occur in countless profusion. All our species may be said to consist of two kinds, viz., green or yellow and ocellate, and I have so sectionized them in the following paper, imperfect although I fear it is, believing that more ease will be experienced by those who try to work them out by this than any other method.

SECTION A.

Green or yellow species.

1. Apex of the elytra without a black margin.

Very pale green, slightly farinose. *Face* pale brown; round the upper margin a broad black line interrupted at the apex.

Head—crown pale brownish-yellow, somewhat farinose; width between the eyes at least one-third shorter than the length down the centre; sides between the anterior margin of the eyes and the apex equal to the breadth across the former; on each side of the apex a very short, slightly diagonal, black streak. *Face* pale brown, with a white central longitudinal line, widest on the frons, and six or seven transverse white lines on

each side, the first two or three faintly bi-undulate; upper margin with a broad black line, interrupted at the apex, and joined to the short streaks on the crown; side margins very narrowly black, most perceptible from the upper margin to in a line with the insertion of the antennæ. *Antennæ* very pale brown; *setæ* brown towards the apex.

Thorax—pronotum very pale yellowish-green, slightly shining, slightly farinose; length down the centre about equal to one-half the breadth; posterior margin almost straight across the scutellum. *Scutellum* pale yellowish, slightly farinose. *Elytra* as long as the abdomen, pale green, slightly farinose, somewhat shining; nerves fine, pale, almost white. *Sternum* pale yellow. *Mesosternum* with a large, almost round, black spot on each side. *Legs* pale yellow. *Tibiæ:* 3rd pair with a short, fine, black line on the inner margin at the base; spines pale, inserted in small brown punctures. *Tarsi* of all the pairs pale yellow. *Claws* brown.

Abdomen pale yellow. Length, 1½ line.

1. LONGICAPUT, *n. sp.*

This species will be most easily recognised by the long head, black line on the upper margin of the face, and the almost round black spot on the mesosternum. I only possess a single ♀, but have no record of the date of capture. It has been compared not only with the Fieberian collection, but also with his drawings, and differs from everything therein contained.

Very pale green, shining. *Crown* pale greenish-yellow; length down the centre about equal to the width across the anterior margin of the eyes; apex on each side with a short, slightly diagonal, black line. *Face* pale yellow, with four broad, transverse, black lines on each side, the upper one broadest and joined to those on the crown; apex broadly pale yellow. Cheeks black, lower margin yellow. *Lorœ* yellow, upper margin black.

Thorax—pronotum and *scutellum* pale greenish-yellow. *Elytra* very pale green, shining, ♂ longer than the abdomen, ♀ as long as the abdomen; nerves fine, almost white. *Legs* pale yellow. *Thighs:* 1st and 2nd pairs with a broad black ring near, and a narrow one of the same colour in, the middle; 3rd with a black line along the upper and under-side, not reaching the apex; upper margin black. *Tibiæ* pale yellow; inner margin of all the pairs narrowly black; 2nd and 3rd, outer margin with pitchy-black punctures, in which are inserted the pale spines.

Abdomen: ♂, underneath piceous, sides broadly brown or brownish-yellow; last segment yellow; genital segments yellow, clothed with long pale hairs. Length, 1½ line.

2. MULSANTI, Fieb., = *striifrons*, Kirschb.

This species has a shorter crown than the foregoing, and neither is the apex so acute; the black transverse streaks also, sloping rapidly off towards the lower margin of the eyes, sufficiently serve to separate them.

Apparently scarce. Taken by Mr. Douglas and myself at Croydon in June.

Yellow. *Elytra* slightly longer than the abdomen, pale, almost transparent; nerves fine, white.

Head—crown and *face* yellow, without markings; length of the former down the centre equal to the breadth across the anterior margin of the eyes; anterior margin and apex concave.

Thorax—pronotum and *scutellum* yellow. *Elytra* slightly longer than the abdomen, pale, almost transparent; nerves fine, white. *Legs* yellowish-white. *Tibiæ:* 2nd and 3rd pairs with pale spines. *Tarsi* whitish. *Claws* brown.

Abdomen: ♀, beneath, pale; next the posterior margin of the last segment with a small black spot on each side, in a line with the base of the ovipositor; genital segments pale, somewhat thickly clothed with long pale hairs. Length, 1¾ line.

3. METRIUS, Flor.

The absence of markings on the head and other parts of this insect, as well as the form of the posterior margin of the last abdominal segment of the ♀, with the two black spots, sufficiently indicate its distinctness from all other British species.

Seemingly very scarce. I only possess a single example.

Smoky testaceous. *Crown* with a large, somewhat round black spot on each side in front of the anterior margin of the eyes.

Head—crown with a small black spot on each side of the apex, and two others larger and somewhat round in front of the anterior margin of the eyes. *Face* black, with four or five short, fine, transverse, yellowish-white lines on each side, becoming shorter as they descend; frons always broadly yellowish. *Clypeus* pitchy black, margins yellow. *Loræ* black, or with yellow margins.

Thorax—pronotum and *scutellum* dusky testaceous. *Elytra* longer than the abdomen, yellowish, semi-transparent, nerves fine, yellowish, of the same colour as the corium at the base; apical areas not margined with fuscous or black. *Legs* testaceous. *Thighs* more or less pitchy-black at the base. *Tibiæ:* 3rd pair black, base narrowly testaceous; spines testaceous. *Tarsi:* 3rd pair black.

Length, 1¼ line.

4. MACULICEPS, Boh.

Differs from all other British species by the two large black spots on the crown.

The only specimens I have seen were taken by the Rev. T. A. Marshall, at Wimbledon, in July.

Pale yellowish. *Elytra* as long as the abdomen; central apical area with a minute brown spot next the exterior margin.

Head—crown with a narrow brown streak along the anterior margin on each side of the apex, and two more or less distinct brown patches, one adjoining the anterior margin of the eyes, the other at the posterior margin; length down the centre about equal to the distance between the eyes on the posterior margin. *Face* more or less brown, with five to six transverse yellowish-white lines on each side, interior extremities somewhat knotted or comma-shaped. *Clypeus, cheeks,* and *loræ* yellow. *Antennæ* yellow; *setæ* brownish.

Thorax—pronotum dingy yellow. *Scutellum* yellow. *Elytra* pale yellowish, nerves yellowish-white; central apical area with a minute brown spot exteriorly. *Sternum* yellow. *Prosternum* in the middle, black. *Meso-* and *Metasternum* more or less blackish on the sides. *Legs* yellow. *Tibiæ:* 3rd pair at the base

on the inner edge, with a short, dark brown streak; apex narrowly brown. *Tarsi* yellow; 3rd pair, apex of the 1st and 2nd joints narrowly, and 3rd broadly, brown.

Abdomen: ♂, above, black; posterior margin of the segments very narrowly yellow, joined to a triangular patch of the same colour on the sides; connexivum yellow, margins of the segments very narrowly black; genital segments yellow; ♀, above, yellow, with a broad, black dorsal patch on three or four basal segments; beneath yellow; posterior margin of the last segment straight.

Length, 1¼ line.

5. FLAVIPENNIS, *n. sp.*

The characters on the head very much resemble those on *D. striatus*, and I believe it will prove to be an extreme variety of that species.

2. Apex of the elytra with a black or dark brown margin.

Dark green, bluish-green, or greenish-yellow.

Head: after death yellow. *Crown* with a very short, somewhat oblique, black or dark brown streak on each side of the apex or sometimes obsolete. *Face* black, or the upper half only black, with five to seven narrow, transverse yellowish-white lines on each side. *Clypeus* and *lorœ* frequently narrowly margined with black or dark brown, and the former, sometimes, with a dark streak down the middle.

Thorax—pronotum and *scutellum*, after death, yellow. *Elytra* dark green, bluish-green, or greenish-yellow, opaque; exterior margin of the apical areas narrowly dark brown or black. *Legs* yellow. *Thighs:* 1st and 2nd pairs with two narrow black bands, one near the middle and the other before the apex, sometimes only indicated by spots, and sometimes obsolete; 3rd, with a black line along the upper margin at the apex, and generally a broad black streak along the upper and under-sides not reaching the apex. *Tibiæ:* 3rd pair broadly black down the inner margin, or frequently black with the base narrowly pale. *Tarsi:* 3rd pair black; base of the 1st joint orange. Length, 1¾—2 lines.

6. ABDOMINALIS, Fab.

Easily recognised by the dark green colour of the elytra and the black or dark brown margin to the apical areas.

Not rare, by sweeping in damp places from June to end of August.

3. Apical areas faintly margined with fuscous.

Very pale green or greyish-green.

Head—crown pale yellow or sometimes brownish; length down the centre almost equal to the width across the anterior margin of the eyes; anterior sides slightly convex; apex acute, on each side of the latter a black spot or very short streak, frequently wanting. *Face* dark brown with a white or whitish central

longitudinal line, and on each side about six transverse lines similarly coloured, their inner extremities somewhat knotted or comma shaped. *Clypeus*, *cheeks*, and *lorœ* yellowish or yellowish-white.

Thorax—pronotum and *scutellum* yellow or pale greenish-yellow. *Elytra* very pale green or greyish-green, almost transparent; ♂, slightly longer than the abdomen, ♀, barely as long; nerves pale greenish-yellow; apical areas sometimes very narrowly margined with fuscous. *Legs* as in *D. Mulsanti*, but sometimes the markings are more or less obliterated.

Abdomen: ♂, above, black; posterior margin of the last four segments and the side margins yellow; beneath, black; genital segments short, black or piceous; ♀, posterior margin of the last abdominal segment slightly concave.

Length, 1½ line.

7. ASSIMILIS, Fall. (*nec* J. Sahlberg).

The different characters on the face, and the short black genital segments of the ♂ will at once show where this species varies from *D. Mulsanti*, to which it is nearly related.

It seems to be rather uncommon. It has been taken by Mr. Douglas and myself in the Isle of Wight, in July.

Pale greenish-yellow.

Head—crown pale yellow or brownish; length down the centre not so great as the width across the anterior margin of the eyes; apex scarcely acute; anterior sides slightly convex; on each side of the apex a short black streak, almost parallel with the centre. *Face* dark brown, with five to six fine, yellowish-white, transverse lines on each side, becoming shorter as they approach the apex. *Clypeus* yellow, with a broad dark brown streak down the centre. *Cheeks* not unfrequently brown, with the exterior and lower margin yellow; *lorœ* yellow, margined with brown.

Thorax—pronotum and *scutellum* yellow or greenish-yellow. *Elytra* pale greenish-yellow; nerves yellow; apical areas more or less pale fuscous. *Legs* pale yellow with markings similar to those in *D. assimilis*.

Abdomen: ♂, above, black, with a slight bluish tinge; side margins broadly yellow, with a small black puncture in the centre on each segment; last segment yellow; genital segments yellow; beneath, black, genital segment yellow; valve black, narrowly margined with yellow; plates at the base, black; ♀, posterior margin of the last abdominal segment beneath with a narrow triangular notch in the centre, and the sides deeply concave. Length, 1¼—1⅓ line.

8. MINKI, Fieb. = *assimilis*, J. Sahlb.

Very like *D. assimilis*, but both sexes are easily distinguished from that species by the longer and differently coloured genital segments of the ♂, and the shape of the posterior margin of the last abdominal segment (underneath) of the ♀.

I have introduced this species as new to Britain, on specimens named for me by the late Dr. Fieber. Three examples of the above

were sent to Dr. J. Sahlberg for identification, who returned them with the name *D. assimilis;* but, on examination of the genitalia, I find they agree exactly with Fieber's figures of the insect now described. Under these circumstances, I have referred *D. assimilis*, Sahlb., to *D. Minki*, Fieb.

Pale yellowish or brownish-yellow. *Elytra:* anterior margin very pale yellowish-white.

Head—crown yellow; length down the centre about equal to the width across the anterior margin of the eyes; anterior sides slightly convex; apex with a very short, nearly straight black streak on each side, and sometimes another along the margin; occasionally both are obsolete. *Face* more or less dark brown, with a more or less distinct narrow pale longitudinal line, and on each side about seven transverse whitish lines, sloping off in a line with the upper margin of the loræ, inner extremities of two or three on the frons somewhat knotted or comma-shaped; intervening brown spaces broadest. *Cheeks* and *loræ* yellowish, or the former brown, with the exterior and lower margin yellow, and the latter narrowly margined with brown.

Thorax—pronotum and *scutellum* yellow. *Elytra* pale yellowish or greenish-yellow, semi-transparent, ♂ longer, ♀ as long as the abdomen; nerves fine, almost white; anterior margin very pale yellowish-white, broadest at the base; apical and apices of the adjoining ante-apical areas faintly brownish, sometimes with very narrow somewhat darker margins. *Legs* yellow. *Thighs:* 1st and 2nd pairs with or without the usual bands; 3rd with a black line along the upper margin at the apex; upper and under-side with a broad black longitudinal streak, not reaching the base or apex. *Tibiæ:* 3rd pair yellow, with a more or less broad black line inside next the inner margin; outer margin with black punctures, in which the pale spines are set. *Tarsi* yellow, or with a fuscous shade. Length, 1¼—1½ line.

9. PASCUELLUS, Fall.

In the form of the genitalia, very like *D. Minki*, the most perceptible difference being simply a deeper sinuation on the sides of the posterior margin of the last abdominal segment of the ♀ of that species. Another difference is in the total or almost total absence of the pale yellowish-white anterior margin of the elytra of the last named. As the extremes of variation constantly occur in this genus, it is possible that these two species are not really distinct.

Pale yellowish-white. *Elytra* pale, almost transparent; apex of the ante-apical area adjoining the inner apical one with a dark brown spot.

Head—crown pale yellowish-white, with a narrow black line in front on each side of the centre, sometimes interrupted or obsolete. *Face* brown, with a whitish central line, and about six transverse white lines on each side. *Cheeks* and *loræ* yellowish.

(To be continued).

NOTES ON SOME BRITISH *DOLICHOPODIDÆ*, WITH DESCRIPTIONS OF NEW SPECIES.

BY G. H. VERRALL.

(continued from page 198.)

The species of the genus *Chrysotus* are some of the most difficult to distinguish in the whole of the *Dolichopodidæ*. In my list of 1872, I only recognised four British species (*C. læsus*, *cupreus*, *gramineus*, and *neglectus*). I can now distinguish, with more or less certainty, ten species, chiefly by the help of a recent monograph of the European species by Kowarz, in Verh. zool.-bot. Ges. Wien, xxiv, 1874. He seems to find the species very difficult to group, and is obliged to form a separate table for each sex to distinguish the species. His material consisted of sixteen species, in all of which he knew the male, but in four of which he knew that sex only. His first division in the males comprises two species only, which have the femora almost entirely yellow; both of these occur in Britain; they are:—

CHRYSOTUS NEGLECTUS, Wied.

A species well distinguished in the male sex by its entirely yellow femora, large size, and black-haired front coxæ; the female is very variable in the colour of the legs, but may be distinguished from allied species by its rather larger size, black-haired front coxæ, yellowish hind trochanters, rather small third joint of the antennæ, and entirely yellow hind tibiæ; the femora vary from almost entirely yellow to almost entirely black. I have caught it at Footscray, Penzance, Upware, and near Southend, in June and July, but have never found it common.

C. CILIPES, Mg.

This species may be known in both sexes by its small size, bright green colour, yellow femora, the hind pair with black tips, and yellow-haired front coxæ. It is correctly recorded in Walker's Insecta Britannica as not rare; but, as I had never seen a specimen when I published my list, I omitted it. I have since caught it in great abundance in some marshy meadows at Beaulieu, in the New Forest, and at Upware, besides a few specimens in other localities.

From the fourteen species left with chiefly black femora, Kowarz separates two which have the hind trochanters yellow; I find, however, nearly all the species with the hind trochanters more or less brown or yellowish, but the one which I recognize of his group, has the hind trochanters and base of femora conspicuously yellow, which is never the case with the others.

C. PULCHELLUS, Kow.

A small species similar to *cilipes* and *gramineus*, but easily distinguished from *cilipes* by its black anterior femora, and from *gramineus* by the yellow base of the hind femora; it closest ally, *femoratus*, is larger, and has a smaller third joint to the antennæ; I cannot, however, as yet express myself thoroughly satisfied with the specific distinctions. I caught a pair apparently belonging to it at Rannoch, in June, 1870. The remaining twelve species known to him, Kowarz does not attempt to divide into groups; he first isolates

C. BLEPHAROSCELES, Kow.

A large dull coloured species, with unusually bristly front tibiæ, of which he only knows two male specimens. I am inclined, though with considerable doubt, to refer to this two pairs of an insect caught near Penzance, in July, 1871. He describes his species as dull green, the third joint of the antennæ small, eyes nearly (in mine, I think, quite) touching, palpi small, brown, at the tip shining-yellowish, wings pale brownish, darker towards the costa (in mine almost blackish tinged), alulæ reddish-yellow with blackish-brownish-yellow fringes (in mine whitish, with blackish edges and fringes), legs black, with the front tibiæ and tarsi reddish-brown (in my males, all blackish), front tibiæ, especially on the upper-side, more distinctly ciliated than usual, and besides the bristles near the base with a second strong bristle behind the middle, almost concealed by the ciliation, hind tibiæ including the metatarsus with conspicuous ciliation (the ciliation on the hind legs is moderate in one of my males, slight in the other); abdomen dark dull green, genitalia drawn in.

The abdomen in my specimens is strongly suggestive of the genus *Diaphorus*, as it is longer than usual in *Chrysotus*, and of the usual dark blue-green hue common in *Diaphorus*, and at its apex bears four or five short stubby bristles, easily overlooked, the genitalia also extend beneath for some distance in an irregularly concealed manner.

The females of my specimens are palish green, the *frons* pale green, the face narrow, greenish-white, scarcely occupying one-sixth the width of the head, the palpi small, blackish at the tips, shimmering white, alulæ as in male, white with blackish edges and fringes, the anterior tibiæ and base of tarsi yellowish, with only the usual bristles, though the cilia on the front tibiæ may be slightly more abundant and distinct than usual. The second female has the front tibiæ a little darkened at the tip, and the middle pair at the base.

The chief points which make me hesitate as to the identity of my

specimens with Kowarz's species are the alulæ, and his silence concerning the peculiar termination of the abdomen, and, therefore, for the present the name must remain doubtful.

C. CUPREUS, Mcq.

This species is distinguished from the rest by its front coxæ, which are whitish-yellow at the tip, and more or less so on the front. The British specimens are, I believe, always considerably smaller than the continental, but no other difference has been detected. I took the males once freely at Faygate, in Sussex, on May 25th, and have taken it in May and June at Denmark Hill, St. Mary Cray, and Windsor Forest.

C. PALUSTRIS, *n. sp.*

Obscure æneus vel cupreus, antennarum nigrarum articulo tertio majusculo, tegulis pallide ciliatis, femoribus nigris, coxis anticis albopilosis (*Long. vix.* 1 *lin.*).

♂. *Fronte argenteo-micante, facie angustâ, argenteâ, palpis flavis, ciliis oculorum inferis confertis albidis, pedibus nigris, genubus luteis.*

♀. *Obscure cupreus, palporum nigrorum apice pallescente, tibiis flavidis vel luteis.*

♂. Dull green, thorax slightly shining, eyes separated by a narrow silvery face, palpi yellow, cilia of the lower orbit rather abundant and conspicuous, white, frons more than one-third the width of the head, bluish-green rendered silvery by tomentum; antennæ with the third joint rather large, neither rounded nor pointed. Thorax green in the middle, coppery on the sides, rendered dull by minute tomentum, halteres orange, alulæ bright yellow with pale yellow fringes.

Legs greenish-black, with yellowish knees, front coxæ with conspicuous white pubescence, tibiæ very slightly bristly, usual bristle on middle pair and two or three bristles on hind pair; in one specimen, probably immature, the anterior tibiæ and base of tarsi are brownish. Wings rather dark, with more or less of a yellowish tinge.

♀. Rather larger, more coppery, thorax very dull, face dull white, about a quarter the width of the head, palpi rather large, whitish at the tip; front coxæ luteous at the extreme tip, and there with yellow hairs, on the disc with white hairs, femora slightly shining, tibiæ brownish or yellowish. Wings clearer than in male.

This species is evidently allied to *C. suavis*, Lw., but is darker and duller coloured, *suavis* being blue or violet; the face of *suavis* is green, and "mire angustâ," shining white near the antennæ, while in *palustris* it is all shining white, and not very narrow, in fact rather broad for this genus. *Suavis* has the legs and abdomen with a whitish pubescence, and yellow anterior tibiæ, while I expect all mature *palustris* have only the knees luteous. The female of *suavis* is greener, the face and *frons* dirty grey. *C. albibarbus*, Lw., is also blue or green, with but little tomentum, and no silvery shimmer on the *frons*.

On August 25th, 1875, I caught eleven specimens (three ♂ and eight ♀) of this species near Seaford, Sussex, in company with *Thinophilus versutus* and *Thrypticus bellus*, on a marshy spot.

C. GRAMINEUS, Fall.

This is the commonest species of the genus in England, and may be known by its bright blue or green colour, rather small size, small third joint of the antennæ, yellow anterior tibiæ and black hind tibiæ, pale fringed alulæ, and silvery white face, which is very narrow in the male. I believe it is universally distributed. It is rather variable, but I have in vain attempted to split off any species from it, until last autumn, when I came to the conclusion that the specimens from Upware, in the fens, represent some other species, probably—

C. MICROCERUS, Kow.

Distinguished from *gramineus* by its pale hind tibiæ, brown fringed alulæ, smaller third antennal joint, and in the female by the anterior femora being yellow for fully the last quarter. Kowarz says the antennæ usually have the two basal joints reddish, but I am unable to distinguish this character, which would at once settle all doubt, as *microcerus* is the only *Chrysotus* known which has not entirely black antennæ; perhaps more specimens will show that the antennæ are sometimes pale. I brought back one male and five females from Upware last July.

C. LÆSUS, Wied.

This is a well known species, being the only one with the eyes widely separated on the face in the male; it is of a dark blue colour, the third joint of the antennæ and the palpi large, the face broad, grey, and the legs in the male entirely black, which last two characters alone distinguish it from all the rest; the front coxæ are white haired, and the alulæ brownish haired; the tibiæ of the female are more or less pale. I have caught it sometimes in abundance near Lyndhurst, Reigate, Woking, &c.

C. AMPLICORNIS, Zett.

This is also a black-legged species, resembling *læsus*, but the eyes are approximate in the male, the front coxæ are black haired at the tip, the front tibiæ bear distinct bristles, and the tibiæ of the female are quite black, only just the knees being brownish-yellow. I have caught this in various parts of the New Forest.

(To be continued.)

DESCRIPTION OF THREE *HEMIPTERA* NEW TO THE BRITISH LIST.

BY EDWARD SAUNDERS, F.L.S.

MYRMEDOBIA TENELLA, Zett., Faun. Lapp., i, 475, 3.

♂ brownish-black. *Elytra* paler, their cuneus and lateral margins dark; *thorax* with a deeply impressed transverse line, its sides sinuate and dilated near the anterior angles, where they are also slightly reflexed; *corium* with its sides roughly rounded; *cuneus* reddish-brown; *membrane* dusky, paler below the apex of the cuneus. *Legs* and *antennæ* black, 2nd joint of the latter considerably longer than the 3rd.

♀ brown; the head, legs, and base of the antennæ more or less red. *Thorax* transverse, the anterior margin and sides nearly straight, base sinuate, disc with a deep transverse impression. *Elytra* rudimentary, very slightly longer than the scutellum, body round, moderately convex.

Length, ♂, 1 line; ♀, ⅓ line.

Hab. Mickleham, Hampstead, Wicken Fen, Esher (*Dr. Power*). I have also taken it myself near Wandsworth.

Closely allied to *M. coleoptrata*, from which the ♂ may be distinguished by the shorter third joint of the antennæ, and the sinuate sides of the thorax, which are dilated and reflexed in front; the ♀ by the rudimentary elytra, which only extend to a little beyond the scutellum, instead of entirely covering the body as in *coleoptrata*.

ACOMPOCORIS, Reuter (*Temnostethus, pars.*, D. and S.).

ACOMPOCORIS ALPINUS, Reut., Gen. Cimic. Eur., p. 63.

Head and *thorax* black, with a scattered golden pubescence. *Thorax* with the sides nearly straight, base widely sinuate; disc wrinkled and punctured posteriorly, with a slightly curved impression just behind the middle, between it and the less punctured anterior portion. *Scutellum* black, finely punctured, apex impressed. *Elytra* dark pitchy-brown, finely gold-pubescent. *Membrane* dusky, nerves and their margins paler. *Antennæ* black, 2nd joint pitchy-brown in the middle, and slightly clavate towards the apex, 3rd and 4th joints sub-equal.

Length, 1½ line. Hab. near Norwich, T. P. Dossetor.

I have another British specimen without locality.

The more elongate form, darker colour, proportionately longer apical joint to the antennæ, the dark membrane with pale veins, &c.,

easily distinguish this from *pygmæus* (*lucorum*, D. and S.). In general appearance it looks more like a narrow *Tetraphleps*, but the long antennæ and generic characters at once separate it from that genus. I believe I am right in referring this to Reuter's species.

NABIS POWERI, *sp. n.*

Elongate, sides of the body sub-parallel, pale ochreous. *Head* with a dull pale brown stripe on each side and in the centre, and with a brown Y-shaped mark at the base. *Thorax* elongate, sides nearly straight, with a central line and various small markings on the disc, brown; *scutellum* with a central line, brown; *elytra* very short, truncate, very slightly rounded at the corners. *Body* finely pubescent, very elongate in both sexes, ochreous, becoming reddish towards the margin, sides not foliaceous, with a black central line, and a brown line outside this on each side, but not quite touching it; *legs* ochreous, spotted with brown.

Length, 6 lines.

Hab. Chobham, Surrey. Taken by sweeping in a marsh.

Allied to *N. limbatus*, but rather larger, and at once distinguishable by the sides of the body not being foliaceous, and in the ♀ being sub-parallel as in the ♂; whereas in *limbatus* the body of the ♀ is much widened, and with the sides rounded. The eyes are also less prominent and further apart; the rudimentary elytra are much less rounded at the apex, and the body is differently coloured. The hamus of the male genitalia is larger and differently shaped.

It is also allied to *N. lineatus*, Dahlb., a species unknown to me; but, according to Reuter's description, the present species appears to to be distinct, especially in the narrow body of the ♀.

2, Spencer Park, Wandsworth:
10*th February*, 1876.

DESCRIPTIONS OF FOUR NEW SOUTH AMERICAN *HESPERIDÆ*.

BY W. C. HEWITSON, F.L.S.

ERYCIDES GAUDIALIS.

Upper-side: blue-black. The whole of the body rufous. Anterior wing with the base orange: crossed by three bands of transparent white spots: the first at the middle trifid, the second of two separate spots, the third near the apex continuous of five minute spots: a small white spot near the inner margin, and a sub-marginal series of four

pale blue spots. Posterior wing with the basal half covered with orange hair: the fringe broadly white, divided by the nervures, which are black.

Under-side: as above, except that it is altogether black, tinted with blue on the posterior wing. Posterior wing with three or four pale blue spots near the outer margin.

Exp. $1\frac{8}{10}$ inch. Hab. Chiriqui (Ribbe).

In the collection of Dr. Staudinger. A beautiful species, most nearly allied to *E. Coritas*.

ERYCIDES TENEBRICOSA.

Upper-side: dark brown; the fringe white. The whole of the body, except the anus which is scarlet, black. Anterior wing slightly tinted with blue, the base of the costal margin rufous.

Under-side: olive-green, the nervures black: the base of the anterior-wing and the inner margin of the posterior wing dark brown.

Exp. 2 inches. Hab. Peru (Chanchamayo, Thamm.).

In the collection of Dr. Staudinger. On the under-side of the wings, this species scarcely differs from some examples of *Pyrrhopyga Thasus*.

ERYCIDES TEUTAS.

Upper-side: black. The body black, except the neck, which is scarlet. Anterior wing tinted with green, marked near the costal margin before the middle by a trifid, triangular, transparent, white spot. Posterior wing with the fringe white.

Under-side: as above, except that the transparent spot of the anterior wing forms part of a band which is continued to the anal angle, and that the posterior wing is green.

Exp. $1\frac{8}{10}$ inch. Hab. Amazons (St. Paulo).

In my own collection, from Mr. Bates. Does not differ in general appearance from *Pyrrhopyga Arinas* and *P. Hadora*.

PYRRHOPYGA AGENORIA.

Both sides dark red-brown: the fringe white, the whole of the body, with the exception of the neck which is carmine, dark brown. Posterior wing with the anal angle, which projects, carmine.

Exp. $1\frac{4}{5}$ inch. Hab. Peru (Chanchamayo, Thamm.).

In the collection of Dr. Staudinger. Nearest to *P. Passova* and *P. Gortyna*.

Oatlands, Weybridge: *March*, 1876.

Further notes on collecting in St. Helena.—I take the opportunity of a temporary calm on the line (when otherwise than a horizontal posture is practicable) to send a few notes—just to say that we have at last left St. Helena, and are now steaming up, at thirteen knots an hour, to Madeira.

We have had six months in the land of *Cossonidæ* (at least three longer than we originally intended), resulting, of course, in a perfect raid amongst its *very limited*, but, nevertheless, most peculiar and interesting fauna. I say "very limited" because all my efforts with net, hands, and sifter, have, I suspect, scarcely brought up my Coleopterous list to much above 200 species, and that too in spite of at least 10,000 specimens mounted, and already examined with some amount of care. The fact is, that, in that remote and weather-beaten little spot, whole families and departments, which are more or less represented almost everywhere, are entirely wanting; and you may use the sweeping-net over miles of grassy mountain-slopes (covered with a yellow kind of dandelion, much as one sees in North Wales) without finding a single flower-infester, or anything approaching to it. Your net, on examination, is simply empty. There seem to be no *Hydradephaga*, although there are plenty of small streams; no indigenous Longicorns (merely two imported species); no indigenous *Necrophaga* (as usually understood by that term); and very few *Heteromera* and *Brachelytra*. As I always anticipated (years ago), and over and over again stated would be the case, the *Rhynchophora* monopolize the lion's share of the fauna, some half-a-dozen types being developed to so marvellous an extent as occasionally to exhibit forms that are well-nigh ludicrous. Nearly all these types circle round *Microxylobius* and *Stenoscelis* of the *Cossonidæ*, and *Notioxenus* of the *Anthribidæ*; and I strongly suspect that future calculations will bring to light the wonderful fact that *about a quarter of the entire Coleopterous fauna of the island are Cossonidæ!* This is pretty well, considering that in Great Britain, out of a fauna of, I suppose, more than 3000, the *Cossonidæ* number only eight or nine species, and one or two of even those may perhaps have been introduced. In St. Helena *all* of them (except possibly *one*) are, *par excellence*, aboriginal; so that I, who curiously enough happened to have made the *Cossonidæ* my particular friends, have certainly tumbled on my legs in this little oceanic preserve of the southern Atlantic. The worst of it is, in spite of all our exertions and constant work, I have absolutely not met with the *Microxylobius* type, —the insignificant *M. Westwoodi*, which has been unique and classical for now nearly fifty years in an English cabinet, having altogether escaped us! Still, having myself examined it formerly with great care, I see enough of its affinities to be almost sure of its *habitat*; and I have left directions with a young and rising entomologist in the island, which I hope will result in his turning it out at no distant time, and when the season for the "scrub-wood" (which is the local name for one of the most distinct of the indigenous arborescent *Compositæ*) again comes round.

The *Carabidæ* are represented by two species of *Calosoma*, the widely-spread *Pristonychus complanatus*, the great *Haplothorax Burchelli* (of which we were too late in the year to see more than the dead remains), and about eleven most remarkable and extremely indigenous *Bembidia*. The latter chiefly reside *within* the damp and rotten stems (at the highest elevations) of the tree-ferns!

The minute Anthribids, comprised (unless others should have to be established) in my genera *Notioxenus* and *Homœodera*, are almost as distinct, *inter se*, and curious, as the members of the *Cossonidæ*.

The material will give me plenty of work on our return, which I hope will be not later than early in June.

Mrs. Wollaston has not added greatly to her *Lepidoptera* during the last two months, for the island is both poor and rather commonplace in that order, and the heat was becoming too much for her before we left.

Madeira is comparatively so well known that I do not think I shall distress myself with work during our short sojourn there. Still, I have always points to be cleared up, and a few others (especial ones) to be attended to.

We have had no entomological news since we left home (in August last), the Magazine not having been forwarded from Teignmouth. Should be glad to have a sweep again in an English meadow.—T. V. WOLLASTON, On board the S. S. "American" (Lat. 0): *February 26th*, 1876.

The Doubleday Collection.—The valuable collection of butterflies and moths belonging to, and collected by, the late Mr. Henry Doubleday, of Epping, has been now, by the wish of many collectors, and with consent of the Trustees, placed in the Bethnal Green Museum, to be called "The Doubleday Collection."

Habit of the larva of Hemerosia Rheediella.—About fifteen months ago, I received a rather startling piece of intelligence from Herr Mühlig, of Frankfort-on-the-Main, in reference to the larva of *Antispila Pfeifferella*, which he assured me, from repeated observations, had been found (at any rate in the Frankfort district) to feed, not like the larvæ of *A. Treitschkiella*, mining the leaves, but spinning up in the *flowers* of the dog-wood, *Cornus sanguinea*, and, when full-fed, boring into soft or rotten wood or bark, and remaining there unchanged from June to April.

To this, I replied that his news was very interesting, though scarcely credible, yet I knew he was a good observer, &c., &c.

Ten days ago I heard again from him, that after rearing, apparently, for four years in succession, *Antispila Pfeifferella* from the larva in the dog-wood flowers, he had at last been successful in rearing *Hemerosia Rheediella*. His plan had always been to leave the dog-wood blossoms and some soft wood for the hibernating larvæ in a flower pot exposed to the weather all the winter, and, to prevent things getting too dry, he had put *a lot of dog-wood leaves* in the flower-pot, hence the *Antispila Pfeifferella* had been unwittingly carried in to spoil the experiment, and the *Hemerosia Rheediella* had probably perished, causing the imagos of *Pfeifferella* to appear as the results of the larvæ in the *Cornus* blossoms. In the winter of 1874–5 he tried again, and this time without dog-wood *leaves*, and no *Pfeifferella* made their appearance.

Cornus sanguinea is, I believe, at any rate, a new food-plant for the larva of *Hemerosia Rheediella*. Probably, if it likes flowers of dog-wood, it may also like flowers of hawthorn, apple, &c. Herr Mühlig's note of its habits agrees with Wilkinson's remark (British Tortrices, p. 157): "we are credibly informed that it "burrows into the bark to undergo its final change."—H. T. STAINTON, Mountsfield, Lewisham, S.E.: *February 29th*, 1876.

Captures of Noctuidæ near Orillia, in the province of Ontario, Canada West.—During the season of 1875, I collected *Noctuæ* near Orillia, in the province of Ontario. The locality where I resided was the Couchiching Hotel, a place of great beauty, situated on a wooded isthmus, dividing Lake Couchiching from Lake Simcoe. From the varied nature of the ground, enormous forest tracts, swamps, &c., I fully expected the locality would have been more productive in insects than my last year's place of sojourn, St. Catharine's, which was supplied with very little timber. In this I was much disappointed, possibly owing to the bad season, more than the locality: the season was an uncommonly cold one. This, combined with the high and cold winds which prevailed at night during the whole summer, was much against sugaring, and certainly rendered it one of the very worst collecting seasons I ever experienced.

I may here mention that Mr. F. Grant, who has resided at Orillia some years, has found *Agrotis fennica* not unfrequent on a species of *Spiræa*, visiting the flowers. He has also taken *Plusia striatella*, *D. Comstocki*, *Agrotis gilvipennis*, *Adit. Chimonanthi*, and other rare *Noctuæ*. In spite of the above-mentioned drawbacks, it will be seen the locality has not failed to yield several species new to science. These have been determined and described by Mr. Grote, of Buffalo, to whom my best thanks are due. The following species must be added to my list of St. Catharine captures: *Agrotis campestris, n. sp.*, *Acronycta vinnula*, *Hadena badestriga*, *P. angulata*, *Noctua plecta*, *Phlogophora v-brunneum*, *Agrotis gladiaria*.

Raphia frater, 4th July, rare at light.

Diphthera Comstocki (Mr. Grant); *fallax*, 2nd July, not uncommon at sugar.

Acronycta occidentalis, 7th June, common at rest and sugar; *morula*, 7th July, not uncommon at sugar; *hasta*, 30th June, rare at sugar; *innotata*, 11th July, common at sugar; *hastulifera*, 15th July, rare at sugar; *noctivaga*, 15th June, common at sugar; *superans*, 11th July, at sugar, not uncommon.

Noctua sigmoides, 21st June, bred from larvæ, afterwards frequent at sugar; *haruspica*, 15th July, very common at sugar; *phyllophora*, 22nd July, rare at sugar; *baja*, 29th July, very common at sugar; *C-nigrum*, 24th June, bred from larvæ, frequent at sugar; *bicarnea*, 17th June, bred from larvæ, abundant at sugar; *badicollis*, 4th August, not rare at rest; *rubifera, n. sp.*, 24th July, very common at sugar; *conflua*, 10th August, rare at sugar; *Normaniana*, 11th August, common at sugar—much darker than St. Catharine specimens; *plecta*, 16th July, not common at sugar; *clandestina*, 27th June, bred from larvæ, common at sugar; *alternata*, 8th August, very common at sugar; *cupida*, 25th August, very common at sugar.

Agrotis tesselata, 11th July, very common at sugar and light; *messoria* (*Cochrani*), 2nd August, swarming at sugar and light; *herilis*, 11th August, not unfrequent at light and sugar; *tricosa*, 18th August, rare at sugar and light; *gularis, n. sp.*, 12th August, not uncommon at flowers and light; *cinereo-macula, n. sp.*, 19th July, not unfrequent over flowers; *turris, n. sp.*, 20th August, not unfrequent at sugar and light; *friabilis, n. sp.*, 4th August, rare at sugar; *versipellis, n. sp.*, 20th June, not uncommon at light; *campestris, n. sp.*, 5th August, not uncommon at light and sugar; *saucia*, 7th July, exceedingly common at sugar; *suffusa*, 12th August, exceedingly abundant at sugar; *venerabilis*, 9th September, rare at light.

Pachnobia orilliana, n. sp., 13th May, not unfrequent at palms.

Matuta Catharina, 10th May, not uncommon at palms and light.

Aplecta pressa, 5th July, common at rest and sugar; *occulta*, 16th August, not rare at sugar; *herbida*, 8th July, very common at sugar: *nimbosa*, 14th July, not uncommon at sugar; *imbrifera*, bred from larvæ, afterwards at sugar.

Mamestra vicina, 4th Aug., rare at rest; *atlantica* = *H. suasa* ?, 21st June, rare at light; *albifusa*, 7th June, very uncommon at rest; *claviplena*, 2nd June, common at sugar; *olivacea*, 6th August, common at rest and sugar; *arctica*, 9th July, very abundant at light, rest, and sugar; *devastatrix*, 1st July, the most common moth at sugar, light, and rest.

Xylophasia apamiformis, 7th August, rare at light; *sputatrix*, 12th July, exceedingly common at sugar; *dubitans*, 19th July, rare at sugar.

Hadena sectilis, 28th June, not uncommon at sugar; *mactata*, 19th August, very abundant at sugar; *modica*, 14th August, not uncommon at sugar; *fractilinea*, 24th August, not uncommon at sugar.

Celæna chalcedonia, 14th June, not uncommon at sugar; *renigera*, July, very common at rest and light.

Dipterygia pinastri, July, not unfrequent at rest and sugar.

Hyppax xylinoides, 12th June, very common at sugar and rest.

Cloantha ramosula, August, one specimen at light.

Callopistria molbissima, 12th August, rare, one specimen at sugar.

Phlogophora iris, 21st June, rare at light; *periculosa*, 21st July, not rare at sugar; *v-brunneum*, *n. sp.*, 24th July, not rare at sugar: *anodonta*, 21st July, not uncommon at sugar.

Euplexia lucipara, 9th June, frequent at light and sugar.

Nephelodes violans, 31st August, very frequent at light, rest, and sugar.

Apamea reniformis, 12th August, very abundant at sugar; *atra*, *n. sp.* ?, with the last, but not so common.

Hydræcia nictitans, 17th July, very common at sugar; *sera*, 15th July, common at sugar.

Arzama obliquata, 14th July, rare at light.

Leucania pallens, 16th July, rare at sugar; *unipuncta*, 21st June, very abundant at flowers and sugar; *pseudargyria*, 15th July, rare at sugar.

Laphygma frugiperda, 6th September, rare at sugar.

Caradrina miranda, 9th August, rare at sugar; *multifera*, 8th August, very abundant at light, rest, and sugar.

Amphipyra pyramidoides, 7th August, very abundant at sugar; *tragopogonis*, 8th August, common at sugar and rest.

Parastichtis gentilis, 25th July, rare at sugar; *perbellis*, 18th July, rare at sugar; *minuscula*, 9th September, rare at light.

Crocigrapha Normani, 17th May, not uncommon at palms.

Tæniocampa alia, 20th May, very rare at palms; *oviduca*, 9th June, very rare at light.

Orthodes infirma, 10th July, common at sugar; *cynica*, 18th July, common at sugar.

Cirrhædia pampina, 24th August, abundant at sugar.

Orthosia infumata, 12th September, rare at sugar.

Xanthia ferruginoides, 29th August, very common at sugar; *silago*, not uncommon at rest and sugar.

Scoliopteryx libatrix, very common at sugar all the season.

Litholomia napæa, *n. g. et sp.*, 11th May, rare at palms.

Xylina petulca, 10th September, very abundant at sugar; *ferrealis*, 2nd September, common at sugar; *Bethunei*, 3rd September, swarming at sugar; *semiusta*, 18th May, at palms—September 9th, common at sugar; *Georgii*, *n. sp.*, 5th September, not uncommon at sugar; *disposita*, May, rare at palms—abundant at sugar in September; *cinerea*, May, rare at palms—15th September, occasionally at sugar; *laticinerea*, 15th September, rare at sugar; *oriunda*, 8th September, rare at sugar.

Anytus sculptus, 31st August, rare at sugar; *capax*, September 14th, rare at sugar.

Calocampa nupera, May, at sallows—11th September, common at sugar; *curvimacula*, May, at sallows—14th September, very common at sugar; *germana*, 5th September, very common at sugar.

Plusia æreoides, 7th August, not common at rest; *purpurigera*, 1st August, at thistle flowers; *bimaculata*, 28th August, rare at rest; *striatella* (Mr. Grant); *simplex*, 8th June, rare over flowers; *u-aureum*, 9th September, rare at light.

Heliothis exprimens, 2nd August, rare over flowers.

Galgula hepara, 9th September, rare at light.

Erastria carneola, 12th June, common at rest and sugar; *nigritula*, 9th July, not unfrequent at sugar.

Drasteria erichto, 2nd May, not common.

Parallelia bistriaria, 3rd July, not unfrequent at sugar.

Catocala relicta, 10th September, saw several at sugar; *unijuga*, 14th August, not common at sugar; *Briseis*, 31st July, common at sugar and rest; *parta*, 29th August, rare at sugar; *ultronia*, 27th August, common at sugar and rest; *concumbens*, 11th August, not common at sugar; *ilia*, 13th August, rare at sugar; *antinympha* (Mr. Grant); *cerogama*, 11th August, very common at sugar; *præclara*, 22nd August, not unfrequent at sugar; *fratercula*, 18th August, rare at sugar; *gracilis*, 11th August, rare at sugar.

Homoptera calycanthata, 28th May, common at sugar.

Pseudaglossa lubricalis, one of the most abundant moths at sugar throughout the season.

Epizeuxis americalis, exceedingly common at sugar.

Xanclognatha lævigata, July, rare; *ochreipennis*, July, not unfrequent at sugar.

Renia plenilinealis, 24th August, not unfrequent at sugar.

Bleptina caradrinalis, July, not common at sugar.

Bomolocha perangulalis, July, very abundant at sugar; *baltimoralis*, very frequent at sugar; *albicuialis*, 20th July, common at rest and sugar; *bijugalis*, June, not unfrequent at sugar.

Hypena subrufalis, August, not unfrequent at sugar and rest; *evanidalis*, 13th August, not common at sugar.

Platyhypena scabra, common at sugar.

Brephos infans (Mr. Grant), May, at birch trees.—Geo. Norman, Cluny Hill, Forres, N. B.

Notes on Acentropus.—At a meeting of the Netherland Entomological Society, held at Leyden on the 18th December last, Mr. Ritsema made the following observations on two points in the life-history of *Acentropus niveus*, Oliv., namely, the mode of pairing in the species in question, and the connection existing betwen the two forms of female (the rudimentary and the normally winged) and the different broods.

As regards the pairing, the female, according to an observation of Reutti, submerges herself during the act of pairing, and even draws the male under water with her. Although Mr. Ritsema had not actually witnessed the act, he considered himself justified in coming to the conclusion that this takes place not *in*, but *on*, the water. On the 1st June last, in the evening, he found two pairs of *A. niveus* had developed in his aquarium, the females with rudimentary wings. The aquarium was situated in the garden, and the wind that evening was so high that he found it impossible to keep the lantern, which he used on the occasion, alight for more than a few moments, so that he was afraid he should not be able to witness the copulation even should it take place, and, in fact, he only had time to observe the males hovering about the females which were floating on the surface of the water; in consequence of the storm increasing, Mr. Ritsema did not visit the aquarium again that night. On the following morning the males were, as usual, just above the surface of the water on the stems of some plants, the females being below the surface, on the leaves of *Potamogeton*, in close proximity to a number of eggs, which subsequently turned out to be impregnated eggs of *Acentropus*. Mr. Ritsema supposes from this, that the act of pairing takes place on the surface of the water, and that the female then dives down to lay her eggs on the leaves of the food-plant. Probably the pair observed by Reutti was, somehow or another, disturbed, and the female considered it advisable to dive down before the action of the male was completed.

In order to appreciate the connection which probably exists between the two forms of female and the different broods, it is necessary to pass in review a complete cycle of the development of the insect. A female with rudimentary wings appears at the end of May, and consequently belongs to a brood which may properly be called a spring brood. This female, after having paired, deposits her eggs; and, from a part of the larvæ produced from these eggs, imagos are developed during the same summer: these form the second or autumn brood, the females of which, according to the example raised by Mr. Ritsema, appear to be furnished with only the rudiments of wings; the remaining larvæ hibernate. The imagos of the second or autumn brood pair, the females lay their eggs, and from these larvæ are produced before the winter, which larvæ, consequently, hibernate at a very early stage of their existence, together with a part of the larvæ derived from the spring brood. An immediate consequence of the dissimilar age of the hibernating larvæ is that in the following year the descendants of the spring brood will develop into the imago state sooner (thus again forming the spring brood with rudimentarily-winged females) than the descendants of the autumn brood; and Mr. Ritsema supposes that from the last mentioned larvæ a generation appears about the middle of the summer, the females of which possess normally developed wings, so that he comes to this conclusion, namely, that the normally-winged females of *Acentropus* must belong to that generation (it might be called the summer brood) which is produced from the autumn

brood. Probably all the larvæ descended from the normally-winged females hibernate, and the imagos produced by these in the following year form a part of the spring brood.—(Translated by J. W. May from the "Verslag" of the Dutch Entomological Society, Meeting of 18th December, 1875).

Does Polia flavocincta ever hibernate in the imago state?—I suppose it is generally understood that all the three British species of *Polia* spend the winter in the egg state; and doubtless, in most cases, if not in all, it is so. How then is the following circumstance to be accounted for? Last winter I planted (to be in readiness for larvæ when required) a quantity of dock roots, in the corner of a yard at the back of my house. It is scarcely likely that any *flavocincta* were about the yard previously; and it is quite as doubtful if the species would occur on the spot from whence the dock roots were brought; yet in the early summer, when the roots had produced tall plants, I was surprised to find the leaves being eaten away by fine healthy larvæ of *flavocincta!* If the imago were known to hibernate, of course the reason would appear to be explained at once; but if it never does, how did the larvæ get on these plants? I may add, *flavocincta* was very abundant in the larval state throughout this district last summer, even on the docks on the roadside just outside the town; they did considerable damage in gardens also.—Geo. T. Porritt, Huddersfield: *February 4th*, 1876.

Entomological Society of London: *1st March*, 1876.—Professor Westwood, President, in the Chair.

Dr. G. Kraatz, President of the Entomological Society of Berlin, and Mr. Clemens Müller, of Berlin, were elected Foreign Members; and Mr. O. E. Janson, hitherto a Subscriber, was elected an Ordinary Member.

Mr. Jenner Weir exhibited two grasshoppers in an apterous state, taken by himself in the Rhone Valley, *in copulâ*, a peculiarity which has been frequently noticed among the *Hemiptera*. He also exhibited a remarkable moth from Madagascar, belonging to the family *Uraniidæ*, bearing a very striking resemblance to a *Papilio*, except that it had the antennæ of a moth and the hind wings were destitute of tails.

Mr. E. Y. Western exhibited some *Coleoptera* taken chiefly in Switzerland.

Mr. W. Arnold Lewis exhibited a specimen of *Argynnis Dia* taken in England by Mr. Wallace A. Smith, whom he introduced to the Meeting. Mr. Smith stated, in answer to several enquiries by the President, that he captured the specimen himself in the year 1872, while sunning itself on some palings near his own house at Worcester Park, Surrey; and it was on an exceedingly hot day, though he did not remember the month. He had only commenced collecting insects in the preceding summer, and it was the first fritillary he had ever had in his possession, and the specimen had never been out of his possession since. He was unable to identify the species at the time, and was not aware of the rarity of the insect until he shewed it to Mr. Lewis. The specimen was handed to the Members and pronounced to be undoubtedly an *Argynnis Dia*. Mr. Lewis remarked that he had seen so many attacks in past publications on those who asserted that *Dia* was a British species, that he was desirous that the testimony connected with the present capture should be recorded.

The President noticed a paragraph in Newman's Entomologist stating that the collection of Butterflies and Moths formed by the late Mr. Henry Doubleday was now being exhibited at the Bethnal Green Museum; and he hoped that special care would be taken of it.

Mr. Dunning exhibited a pair of *Caradrina morpheus* taken *in copulâ* in the Regent's Park, the male being dead; and although still attached to the female, several eggs were laid, and larvæ hatched therefrom, in the box in which they were placed.

Mr. Bates read a letter from Mr. Trovey Blackmore to Mr. McLachlan (who was absent), stating that he was much interested in observing a notice in the Proceedings of this Society respecting the habits of *Cychrus cylindricollis*, reported by M. Baudi to feed on snails. He had called attention (in the Ent. M. Mag., xi, 214) to the fact that *Carabus stenocephalus*, Fairm., fed on snails, which, in Morocco, were so very abundant as to form a marked feature in the landscape by covering the bushes so thickly as to resemble, at a distance, clusters of blossom. He had captured in all eighteen specimens of this scarce *Carabus*, and of these fifteen were obtained either feeding on snails or climbing up bushes of *Retama*, which were covered with snails, especially with *Helix planata*. The *Carabus* having an unusually long head, and the prothorax being narrowed anteriorly, enabled it to thrust its head and prothorax a considerable distance within the shell in search of its food. It belongs to a group comprising several species found in North Africa, which much resembles *Cychrus* in appearance, and which possessed characters sufficiently marked to entitle them to form, if not a genus distinct from *Carabus*, at least a sub-genus of *Carabus*. One of them (possibly a var. of *C. stenocephalus*) occurred in the more northern parts of the Atlantic coast of Morocco, and had been named, by Fairmaire, *C. cychrocephalus*; and another species (*C. Aumonti*, Lucas) had been found at Oran, and in the Angera Mountains, near Ceuta, which had a far narrower prothorax; but, as he had not met with it himself, he was unacquainted with its habits. He believed that other *Carabi* might be found whose habits were similar to those of *C. stenocephalus*. Mr. Bates added that this was a remarkable instance of modification of a form in order to adapt it to a different habit. It could not be a case of affinity, for *Carabus* and *Cychrus* were totally distinct genera. The President considered that the form was simply adapted to the purpose for which the insects were created.

The President drew attention to a subject now being much discussed in Germany and the United States of America, with reference to the spring and autumn broods of *Lepidoptera*, which proved to be modifications of the same species. He was much interested in the subject, and would be greatly obliged to any Entomologist who would furnish him with observations and notes as to the different broods.

The President read a paper entitled "A Dipterological Note from Pompeii," containing remarks on the habits of the genus *Bombylius*; also descriptions of some new species of *Tipulidæ* in the British Museum, accompanied by drawings shewing them to be furnished with hind legs of unusual length.

Mr. John Scott contributed a monograph of the British species belonging to the *Hemiptera-Homoptera* (family *Psyllidæ*), together with a description of a genus which might be expected to occur in Britain.

MONOGRAPH UPON THE BRITISH SPECIES OF *SARCOPHAGA*, OR FLESH-FLY.

BY R. H. MEADE.

(*Continued from page* 220).

2. ALBICEPS, Meig.? Macq.?

Grey, marked and tessellated with blue-black. Face pure white. Middle tibiæ shortly and evenly ciliated. Both anal segments of ♂ black. Three dorsal thoracic bristles behind the suture.

Length 4—5 lines.

This species differs from *S. carnaria*, in being usually smaller, and of a more oval form; the colour is bluer; the face silvery-white, and less prominent; the stripes upon the thorax are wider, and less distinct; the thoracic bristles differ in number, there being only three behind the suture, and two in front of it; all of which are much longer and stronger, and of more even size, than those in *S. carnaria*, see Fig. 2.* The costal spine is usually more distinct; the beard upon the posterior tibiæ less thick; and the middle tibiæ are only clothed with short hairs, of an even length, along the whole surface. The ♀ is very similar to the ♂, with the exception of the usual sexual differences.

This species is not common: I have one ♂ in my own collection, and there are one ♂ and one ♀ in that of Mr. Verrall, one of which was captured at Lewes, Sussex, and the other at Lyndhurst, Hants.†

I have called this species *albiceps*, as in colour and general characters it resembles the one so named by Meigen; but the description of his species is so imperfect, that it is impossible to identify it with certainty.

3. ATROPOS, Meig., Macq., Zett., Schin.

Grey, striped and tessellated with black. Three posterior dorsal thoracic bristles. First anal segment in ♂ grey, often marked with lines or spots. Length, 3—4 lines.

This well-marked species closely resembles the smaller specimens of *S. carnaria*, both in general form, colour, and markings; but it differs from them essentially, in having only three bristles in the posterior part of the dorsal thoracic row, and two in the anterior part, which in size and arrangement resemble those of *S. albiceps*. It also differs from both the preceding species by the colour of the first anal segment of the ♂, which, instead of being shining black, is pale grey, marked by a transverse and sometimes a vertical dark line, and in some specimens with two lateral small dots. This design upon the anal joint is frequently partial or indistinct, and often altogether wanting; the segment being of a plain grey colour. The legs are armed and ciliated as in small varieties of *S. carnaria*, there being a short beard upon the middle tibiæ of ♂. The ♀ is not known.

* Though this figure is intended to represent *S. melanura*, the thoracic part will equally apply to both.—R. H. M.

† I beg to express my thanks to Mr. Verrall for his kindness in placing his large and valuable collection of *Sacrophagidæ* at my service.—R. H. M.

This species is not common, but seems to be generally distributed in England and Scotland.

4. Similis, *n. s.*

Colour and markings as in *S. carnaria*. Thorax with four posterior dorsal bristles. Second abdominal segment destitute of central spines upon the edge. Length, 4—7½ lines.

This species only differs from *S. carnaria* in one essential point, viz., by the central portion of the edge of the second abdominal segment being unarmed with spines. The bristles in the dorsal thoracic rows are similar in number, size, and arrangement to those in species 1. The specimens vary in size greatly, as in that species; and the legs are ciliated in the same manner, many of the large specimens having quite a long beard upon the middle tibiæ of the ♂, when they correspond to the *S. matertera* of Rondani. The ♀ resembles the ♂, except in the hairiness of the legs, and in the width of the frontal space.

Generally distributed, but much less common than *S. carnaria*.

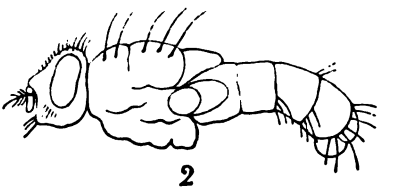
5. Melanura, Meig., Macq., Zett., Walk., Rond.

Yellowish-grey, striped and tessellated with brownish-black. Frontal space wide. Thorax with three posterior dorsal bristles. Second abdominal segment without central spines. First anal segment in ♂ black, and extruded. Costal spine of wings distinct. Length 4—5 lines.

Head: forehead rather less prominent than in *S. carnaria*. Frontal space equal in width in ♂ to one-third of the head, and equal to nearly half in ♀.

Thorax: three posterior and two anterior dorsal bristles, as in *S. albiceps*.

Abdomen without central spines upon the edge of the second segment. Both the anal segments in ♂ shining black, the first extruded. *Wings* mostly with a distinct costal spine. *Legs* with middle tibiæ of ♂ shortly ciliated. In general colour and design similar to *S. carnaria*, but the black is usually of a more rusty tint, and the white and grey spots on abdomen are sometimes of an olive tint.



2

The ♀ resembles the ♂.

This well-marked species is generally distributed.

6. Agricola, Meig.?, Macq.?, Zett., Rond.

Yellowish-grey, striped, and tessellated in black, in the ordinary manner. Buccal setæ a little enlarged. First anal segment of ♂ grey, and mostly retracted. Posterior tibiæ of ♂ thinly bearded. Length, 3—4 lines.

This species resembles *S. melanura* in the number of thoracic dorsal bristles, and by the absence of central spines upon the second abdominal segment; but it differs in having the frontal space narrower (it not occupying more than one-fourth of the width of the head in

the ♂), it is also usually smaller, and more slender in shape, has the first anal segment of the ♂ retracted and grey in colour, and the posterior tibiæ of the ♂ less thickly bearded. The buccal setæ in *S. Agricola* are usually considerably larger than in *S. carnaria* and all the preceding species. There is a great likeness between this species and *S. Atropos*, but it may at once be distinguished from the latter by the absence of the two central spines upon the edge of the second abdominal segment.

Not uncommon.

7. Laticornis, Meig., Rond.

Bluish-grey, marked with black stripes and spots. Third joint of antennæ rather broad. Arista bare. Vibrissæ numerous and large. Two central spines on the second abdominal segment.

Length, 4 lines.

Head: forehead prominent. Face white, with blue reflections. Frontal space occupying about one-fourth of the width of the head in the ♂. Edges of the facial groove setigerous. Third joint of antennæ wide. Arista thickened at the base, and almost bare. Peristome with numerous and large vibrissæ.

Thorax rather indistinctly striped. Dorsal bristles large, three placed behind the suture.

Abdomen with two strong central spines upon the edge of the second segment, and with the third as well as the fourth segment fringed with numerous strong spines. The dorsum is marked by an interrupted black stripe down the centre, and the posterior margin of each segment is marked upon each side by a semi-circular black spot. The ordinary tesellations or reflections are less distinct than in most of the preceding species. *Wings* tinged with brown. *Legs* furnished with strong spines, but with no beard upon the tibiæ of the ♂.

♀ very similar to the ♂, but with a wider frontal space.

This is a well-marked but aberrant species, bearing a strong resemblance to some of the *Tachinidæ*, the arista being thickened and without hairs, and the facial groove setigerous. Not rare.

8. Nigriventris, Meig., Rond.

Grey, striped and tessellated in the ordinary manner. Frontal space wide. Buccal setæ large, style thickened, and with short hairs. Ventral surface of abdomen mostly black. Length, 2—3 lines.

Head: frontal space occupying about one-third of the width of the head in ♂. Buccal setæ large. Third joint of antennæ rather large, but of the ordinary form. Arista thickened at the base, and furnished with short hairs.

Thorax with three posterior dorsal bristles.

Abdomen with two central spines upon the edge of the second segment. Ventral surface sometimes black, but often grey. *Wings* with a distinct costal spine. *Legs* without beard upon the posterior tibiæ of the ♂.

♀ similar to the ♂, but usually larger in size. Frontal space wider.

This species resembles *S. agricola* in having the bristles upon the cheeks enlarged; but it differs in being smaller, and in having the posterior tibiæ of the ♂ bare. Not common.

9. JUVENIS, Rond.

Grey, striped and tessellated in the ordinary manner. Style with long hairs. Costal spine large. Posterior tibiæ of ♂ ciliated, with a few long hairs on their inner sides. Length, 3 lines.

Head: frontal space in breadth about one-fourth of the width of the head. Buccal setæ small, arista with long hairs.

Thorax with three posterior dorsal bristles.

Abdomen with two central spines on second segment. Anal segments of ♂ both shining black. *Wings* with a long costal spine. Fifth longitudinal vein bent at an obtuse angle. *Legs:* posterior tibiæ furnished on their inner sides with a few long hairs.

I have seen but one ♂ of this rare species, which is in Mr. Verrall's collection.

10. CLATHRATA, Meig., Rond.

Blue-grey. Abdomen marked with three longitudinal black lines. Frontal space narrow. Hind tibiæ of ♂ with a few longish hairs. Length, 2½ lines.

Head: breadth of frontal space not more than one-sixth of the width of the head. Style with moderately long hairs.

Thorax rather indistinctly striped. Three dorsal bristles behind the suture.

Abdomen with the second segment armed with two spines in the centre. First segment black, the three others pale grey, marked with three continuous longitudinal black lines, which are expanded but not broken at the posterior edges of the segments, so as to give somewhat the appearance of a series of connected triangular spots. First anal segment of ♂ grey, second black. *Legs:* posterior tibiæ of ♂ with a few straggling longish hairs on their inner sides.

♀ said to resemble the ♂.

This small species bears a very close resemblance to *S. dissimilis* (No. 14), but may at once be distinguished from it by the absence of teeth upon the second longitudinal vein of the wings. Rare. I have one ♂ in my own collection.

11. ADOLESCENS, Rond.

Grey. Thorax and abdomen marked in the ordinary manner. Second abdominal segment without central spines. Posterior tibiæ of ♂ thickly clothed with soft short hairs. Length, 3 lines.

Head: frontal space about one-fourth of the width of the head.

Thorax with three posterior dorsal bristles.

Abdomen tessellated in the ordinary manner, and without central spines upon the edge of the second segment. *Wings* with costal spine small. *Legs* with the posterior tibiæ of ♂ lined along the lower two-thirds of their inner surfaces with short soft hairs.

♀ unknown.

Rare. There is one ♂ in Mr. Verrall's collection, taken at Folkestone.

12. Affinis, Fall., Meig., Macq., Zett.

Whitish-grey, with black lines and spots. Frontal space narrow. Abdomen marked by a single longitudinal line, and with black spots on the posterior margins of the segments. Length, 3½—4 lines.

Heads: eyes of ♂ near together, being separated by a very narrow frontal space, which is often of a reddish-brown colour. Style with rather short hairs.

Thorax striped in the ordinary manner, and with three posterior dorsal bristles.

Abdomen without central spines on second segment. First segment black, second, third and fourth grey, marked with a central black longitudinal line, rather irregular in width, and sometimes interrupted at the sutures, and with six large, black, somewhat triangular shaped spots, one of which is placed at the side of the posterior margin of each segment. Anal segments of ♂ small and grey in colour. *Wings* with no costal spine. Internal transverse vein nearly opposite the end of the second longitudinal, which extends considerably beyond it in most species. *Legs* with posterior tibiæ of ♂ bare.

♀ similar to ♂, but with the frontal space as wide as one-fourth of the head.

Not rare.

13. Setipennis, Rond.

Yellowish-grey, striped and tessellated in the ordinary manner. Second as well as fourth longitudinal vein of wings armed with teeth. Costal spine large. Second abdominal segment with central spines. Length, 3—3½ lines.

Head: frontal space of ♀ as wide as one-third of the head. Style with long hairs, bristles upon the cheeks a little enlarged.

Thorax with three dorsal bristles behind the suture.

Abdomen with two central spines upon the edge of the second segment. Tessellated in the ordinary manner. *Wings:* second longitudinal vein armed with teeth along nearly its whole length. Fourth vein with teeth at the base as in all other species. Costal spine large.

Rare. I have not seen a ♂ of this species, and only three ♀, one of which is in Mr. Verrall's collection, taken at Ranscombe, one is in my own collection, and I received one from the late Mr. F. Walker.

14. Dissimilis, Meig., Schin.

Grey. Abdomen of ♂ marked with three longitudinal black lines. Abdomen of ♀ shining black, with small white spots upon the sides. Frontal space narrow. Wings tinged with brown, and with the second longitudinal vein dentigerous. Posterior tibiæ of ♂ with a few long scattered hairs. Length, 2—3 lines.

Head: frontal space occupying about one-sixth of the width of the head in ♂, and one-fourth in the ♀. Bristles of cheeks of ordinary size.

Thorax marked in the usual manner, and having three posterior dorsal spines.

Abdomen narrow in ♂, with two central spines upon second segment. First segment shining black, the three following ones grey, marked with three longitudinal black lines, formed by a series of triangles, the bases of which are placed backwards. Anal segments

both shining and black. In ♀ all the segments are shining black, but have a small white spot on the lateral edge of each, which is only visible in certain lights. *Wings* with a smoky tinge, which is especially marked along the anterior border. Costal spine large. Second longitudinal vein armed with minute teeth along its anterior half. Fourth with the teeth extending as far as the internal transverse vein. *Legs* with a few scattered long hairs on the inner sides of the posterior tibiæ of ♂.

Not rare. I captured several ♂ of this pretty little fly at Tingewick, near Buckingham, on 2nd August, 1873, but did not see a single ♀. On the 17th September in the following year, I took four ♀ in the same locality, but found no ♂.

15. INFANTULA, Rond.

Grey. ♂ striped and marked as in *S. dissimilis*. Frontal space wide. Posterior tibiæ of ♂ with inner sides bare. Second longitudinal vein dentigerous. Length, 2 lines.

Head: frontal space nearly equal to one-third of the width of the head in ♂.

Thorax striped in the ordinary manner, and having three posterior dorsal bristles.

Abdomen having the second segment armed with two long erect central spines. Form and design much as in *S. dissimilis*, but with the lateral rows of triangular spots less distinctly formed. *Wings* armed as in *S. dissimilis*, but less tinged with brown. *Legs* without any long hairs upon the inner sides of the tibiæ of ♂.

♀ unknown.

Rare. There is one specimen in Mr. Verrall's collection, captured at Reigate, Surrey.

16. HÆMORRHOIDALIS, Zett., Rond.

Grey. Marked and tessellated as in *S. carnaria*. Four thoracic bristles behind the suture. Abdomen with two central spines upon the edge of the second segment. First anal segment of ♂ shining black, second red. Costal spine of wings distinct. Second longitudinal vein without teeth. Beard upon the posterior tibiæ of ♂ thin and short. Length, 4½—5 lines.

This species closely resembles *S. carnaria* in all points except the following. It never attains to the size of some specimens of the latter; the terminal segment of the abdomen is red; the costal spine is larger; and the posterior tibiæ of the ♂ are more thinly and shortly bearded, the hairs only extending a short way up the leg.

The ♀ closely resembles that of *carnaria*, but has the tip of the abdomen red.

Rare. I received a ♂ of this species from the late Mr. F. Walker, and captured one ♀ at Bowdon, Cheshire, in June, 1875.

I have not mentioned the names of either Fallén, Meigen, Macquart, Walker, or Schiner, in the synonyms of this species, for their descriptions of *S. hæmorrhoidalis* either apply to the next species, or are so imperfect that it is impossible to say to what species they refer.

17. NURUS, Rond.

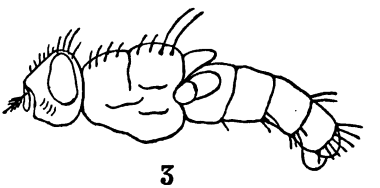
hæmorrhoidalis, Schin., Meig.?, Macq.?.

Grey, marked and tessellated as in the preceding species. Thorax with only two dorsal bristles behind the suture. Second abdominal segment without central spines. First anal segment of ♂ grey, second red. No costal spine to wings. Fifth longitudinal vein bent at an acute angle. Posterior tibiæ of ♂ with a thick beard.

Length, 5—6 lines.

Head: face pale golden-yellow or grey. Frontal space occupying one-fourth of the width of the head. A distinct black or brown stripe runs down the middle of this space, which stripe is wider than the interval that separates it on each side from the eye.

Thorax with only two large bristles in the dorsal row, both of which are at the posterior part behind the suture, all the others, both before and behind the transverse suture, are very small or almost obsolete (see figure 3).



3

Abdomen without spines in the centre of second segment. First anal joint of ♂ extruded and grey, second red. *Wings* without costal spine. Fifth longitudinal vein bent at an acute or sub-acute angle. *Legs* with posterior tibiæ of ♂ thickly, but not longly, bearded.

♀ similar to ♂, except in the usual sexual differences.

Common.

18. CRUENTATA, Meig., Rond.

Whitish-grey, striped and tessellated in the ordinary way. Frontal stripe equal in width to the space between it and the eye on each side. Fifth longitudinal vein bent at an obtuse or right angle. First anal segment of ♂ retracted. Length, $3\frac{1}{2}$—$4\frac{1}{2}$ lines.

Head: face silvery-white. Frontal space rather wider than in *S. nurus*, with a dark red or black stripe running down the centre, which is equal in width to the internal on each side between it and the eye, which is of a whitish colour.

Thorax with dorsal line of thoracic bristles as in *S. nurus*.

Abdomen without central spines on second segment. Anal segments of ♂ smaller in proportion than in *S. nurus*, the first retracted and grey, the second red. *Wings* with the fifth longitudinal vein bent at a more obtuse angle than in *S. nurus*. *Legs* bearded as in *S. nurus*.

♀ similar to ♂, only frontal space wider.

Rare. Mr. Verrall's collection contains two ♂ and two ♀, all of which were bred from pupæ found in pigeon's dung, at Croydon, Surrey, in which were the remains of dead pigeons.

19. HÆMATODES, Meig., Macq., Zett., Schin., Rond.

Yellowish-grey, striped and spotted with brownish-black. Frontal

space wide. Thorax with three posterior dorsal bristles. Posterior tibiæ of ♂ bare. Length, 3 lines.

Head: width of frontal space in ♂ rather more than a fourth of the breadth of the head. Central stripe black, and rather more than double the width of the whitish-coloured interval between it and the eye on each side.

Thorax striped in the usual manner, and armed with five large dorsal bristles, two in front and three behind the transverse suture, as in *S. melanura* (figure 2).

Abdomen without central spines upon the edge of the second segment. Dorsum marked by a longitudinal central stripe, formed by three elongated triangular black spots. Sides tessellated with irregularly-shaped black spots. First anal segment of ♂ pale grey, second light red. Terminal segments of ♀ reddish-brown. *Wings* without costal spine. *Legs* with posterior tibiæ of ♂ smooth.

Rare. Two ♂ and one ♀ of this species are in Mr. Verrall's collection, all captured at Penzance.

20. HÆMORRHOA, Meig., Zett., Schin., Rond.

vulnerata, Schin.

Yellowish or whitish-grey, striped and tessellated with black. Frontal space narrow. Second and fourth longitudinal veins of wings setigerous. Second abdominal segment with two central spines. First anal segment of ♂ black, with a grey spot, second red.

Length, 3—4 lines.

Head: frontal space of ♂ not more than one-sixth of the width of the head in breadth, and entirely black. In ♀ the space is nearly twice as wide.

Thorax marked and armed as in *S. hæmatodes*.

Abdomen with second segment armed with central dorsal spines upon its posterior edge. Colour pale grey, tessellated with three longitudinal rows of black irregularly-shaped confluent spots. First anal segment of ♂ black, marked with a grey patch, second dull red. Terminal segment of ♀ pale yellowish-red. *Wings* with base tinged with brown. Costal spine small, but generally distinct. Second as well as fourth longitudinal veins setigerous. Fifth longitudinal vein bent at a right or obtuse angle. *Legs* with the posterior tibiæ of ♂ either bare, or ciliated with a few longish hairs, when it constitutes the species *vulnerata* of Schiner.

Not rare.

In conclusion, I may remark, that while investigating the minute differences which separate the species of this genus from each other, the question will arise, are these differences in structure sufficient, in many cases, to separate these flies from each other as specifically distinct, or are they only varieties of one or two types? I can only say in answer, that the characters upon which the foregoing species are founded, will be found to be mostly constant and fixed, and that one distinctive point of difference is almost always accompanied by some other. The only species about which I have any doubt, is No. 4,

which I have named *similis*, from the close resemblance which it bears to *S. carnaria*, differing from it only by the want of the dorsal spines upon the edge of the second abdominal segment. In female specimens of *S. carnaria*, these spines are sometimes small and absent; and in a few males I have found them much less than usual: it must therefore remain to be determined by future investigations whether *S. similis* is to be ranked as a true species, or only a variety of *S. carnaria*.

Bradford, Yorkshire:
November, 1875.

NOTES ON SOME BRITISH *DOLICHOPODIDÆ*, WITH DESCRIPTIONS OF NEW SPECIES.

BY G. H. VERRALL.

(concluded from page 248.)

TEUCHOPHORUS SPINIGERELLUS, Zett.

This species seems rare, but I have caught it at Lyndhurst, Darenth, Upware, Reigate, &c.

T. PECTINIFER, Kow., Verh. zool.-bot. Ges. Wien, xviii, p. 218 (1868).

The species recorded in my list as *calcaratus*, I believe to be *pectinifer*: I only caught the specimens after the list was in type, and did not sufficiently study the distinctive characters. I consider *calcaratus* sure to occur in Britain. *Pectinifer* is well distinguished in the male sex by its legs, the hind tibiæ being rather stout, with a peculiar tuft of bristles inside, about the middle; the front tarsi are slightly bristly beneath the basal joint, and the middle femora bear about four conspicuous bristles beneath near the base. The alulæ in my specimens seem pale-haired. I caught this species near Three Bridges on July 28th, 1872, in a small wood, about little pools of water in the paths, in such abundance, that I often had forty or fifty specimens in my net at once. It was previously only recorded from Austria.

SYMPYCNUS CIRRHIPES, Hal.

I caught one male at Braemar on July 22nd.

S. NIGRITIBIALIS, Zett.

This is about the size of *S. annulipes*, but is easily distinguished by its black hind tibiæ; the face is narrower and whiter, the antennæ

rather shorter and less pointed, the front coxæ paler, the front femora not darkened near the base, the front tibiæ without a row of black spines down the inside, the abdomen thinner and blacker, the genitalia less retracted; the third and fourth joints of the hind tarsi bear some very short erect bristles beneath, about five on each joint, but bear no long hairs; the alulæ are pale haired. The female is smaller than that of *S. annulipes*, and is easily known by its yellow front coxæ and femora, black hind tibiæ, pale-haired alulæ, and narrower face. It is the *Dolichopus nigritibialis* of Zetterstedt's Dipt. Skan. xii, p. 4638. Only one male has been recorded from Œland. I caught two pairs on Scotsdon Moor, near Aberdeen, on the 18th July, 1874, and one pair at Braemar three days later.

S. BIFASCIELLUS, Zett.

This species seems to occur over north-west Europe, in single examples. I caught one male at Upware on July 10th, last year. It is a very small species, the third joint of the antennæ being long, pointed, and pubescent, the face is narrow, silvery, the frons shining blue, silvery about the edges; the thorax shining green; the legs and coxæ all pale yellow, except the end of the tarsi, the basal joint of the hind tarsi shorter than the second; third and fourth joints not bristly nor hairy. The abdomen is blackish, a yellow band occupying most of the first and second segments, the genitalia are rather protruded. The discoidal vein ends *in* the tip of the wing.

CAMPSICNEMUS LORIPES, Hal. (not *Fall.*, as in my list).

An almost black-legged variety of this occurs at Aberlady.

C. PUSILLUS, Mg.

One male near Lyndhurst.

LIANCALUS LACUSTRIS, Scop.

Near Fawley, last June.

HYDROPHORUS PRÆCOX, Lehm., Gerst. (= *H. inæqualipes*, Lw.).

This species, although omitted from my list and from Walker's Insecta Britannica, is perhaps one of the commonest British species. It has the wings unspotted, the face and frons all glossy white, the abdomen white haired, greenish-grey, the front femora with spines of equal length, reaching to the tip, and the front tibiæ with about fourteen moderately long spines on the inside, of which the last is longer

than the rest, especially in the male. I have caught it abundantly at Beaulieu, Seaford, and near Lewes.

ACHALCUS FLAVICOLLIS, Mg.

I caught two males of this rare species at Three Bridges, on July 28th, 1872.

In the genus *Medeterus*, my collection is still in a rather unsatisfactory state; I believe I possess at least a dozen species, but many of them in only one or two specimens, or in only one sex. I intend, therefore, to wait for more material before introducing doubtful, or describing new, species; in the meantime I can clearly add:—

MEDETERUS FLAVIPES, Mg.

A south European species, extending from Spain to Asia Minor, and yet, strange to say, tolerably common on posts and wooden buildings about Upware, in company with *M. diadema*, L. It is smaller than that species, with quite yellow legs and a white epistoma. Both species were common, close to the house where I stopped, last July, and I soon learned to distinguish them at a distance of several yards, although I overlooked the first specimens of *flavipes* until they were killed and pinned. There is one specimen correctly named in the British collection in the British Museum, but two specimens with it belong to the genus *Psilopus*.

XANTHOCHLORUS BICOLORELLUS, Zett.

I caught one male of this species at Plashett Park, near Lewes, unfortunately in rather bad condition, so that I cannot satisfactorily decide the doubt as to this species belonging to the genus *Xanthochlorus*.

PSILOPUS LÆTUS, Mg.

A male from Fawley, June 20th, 1875, is brilliant green, slightly smaller and thinner than *P. longulus*, Fall., frons brilliant green, face white; the middle tibiæ and basal joints of middle tarsi beautifully fringed with rather short thin bristles; the basal joint of the hind tarsi equal in length with the second joint; the alulæ yellow-haired, and the genitalia rather concealed. Meigen, in his seventh volume, described this species from a female, and it seems never to have been met with since. I caught a female some years ago; but, as the specimen is abroad at present, I do not know the locality.

Lewes: *April*, 1876.

ON CERTAIN BRITISH *HEMIPTERA-HOMOPTERA*.

BY JOHN SCOTT.

(DELTOCEPHALIDÆ: *concluded from p.* 244).

Thorax—pronotum yellowish-white, with five more or less distinct white longitudinal lines. *Elytra* pale, almost transparent; nerves white; apical areas frequently margined with brown; apex of the ante-apical area adjoining the inner apical one with a dark brown spot. *Tibiæ:* 3rd pair, inner margin generally black.

Length, 1¼ line.

10. PUNCTUM, Flor.

Easily distinguished from all the other British species by the solitary brown spot on the elytra.

The only specimens I have seen are those referred to by the Rev. T. A. Marshall, taken at Milford Haven.

SECTION B.

Ocellated species.

More or less lurid yellow. *Elytra* about as long as the abdomen, nerves very pale yellowish-white or white; anterior marginal nerve at the apex of the costal area and the ante-apical area with a brown margin.

Head—crown with a short, oblique, black streak on each side of the apex, and a more or less distinct reddish or orange triangular patch near the anterior margin of the eyes. *Face* more or less dark brown, with six to eight transverse yellow lines on each side, frequently appearing only as commas next the middle. *Cheeks* and *loræ* yellow, the latter margined with brown.

Thorax—pronotum brownish-yellow. *Scutellum* yellowish-white. *Elytra* about as long as the abdomen, pale lurid yellow; nerves very pale yellowish-white or white; marginal nerve at the apex of the costal area and the ante-apical area with a brown margin; nerves of the apical areas margined with brown, broadest exteriorly; discoidal and ante-apical areas narrowly and irregularly margined with brown, in some instances obsolete. *Legs* pale yellow. *Thighs:* 1st pair generally black at the base, and with a half-band or two spots of the same color in the middle; 3rd pair with a black streak along the upper margin. *Tibiæ:* 3rd pair with a black longitudinal line interiorly; apex black. *Tarsi:* 3rd pair black; 1st joint basal half yellow. Length, 1¼ line.

11. FALLENI, Fieb.

I can perceive no difference between this species and *D. paleaceus*, J. Sahlberg, judging from the insects sent to that author for determination, and returned by him with the above names attached; as on examination the genitalia in both cases were identical, and agree admirably with Fieber's figures in the Verh. z.-b. Ges. Wien, xix, 210, 24.

Very pale ochreous-white or sometimes with a faint fuscous shade. *Elytra* with four or five spots and two streaks on each elytron.

Head—crown frequently pale brownish-yellow, with a short, slightly curved, brown streak on each side of the apex, two triangular spots in a line with the anterior margin of the eyes, and two short oblique streaks near the posterior margin, these characters are more or less obsolete in different individuals. *Face* brown, with a whitish or white central, longitudinal streak unequal in breadth; apical one-third whitish or white; sides with about four transverse white lines.

Thorax—pronotum pale, sometimes with four longitudinal yellowish lines. *Scutellum* sometimes with a dark fuscous triangular spot at each basal angle. *Elytra* very pale ochreous-white or sometimes with a fuscous shade; nerves pearl-white. *Clavus:* inner margin between the 1st and central nerve, and between the latter and the apex, with a black streak; space between the anal nerve and the suture at the base white, followed by an oblong black patch. *Corium:* central area, with a round black spot at the base; central apical area and the anteapical one in a line with it, more or less black; apex of the discoidal area with a black patch; not unfrequently these black characters fill the areas, which are then separated only by the white nerves which have a cruciform appearance. *Legs* pale. *Tarsi:* 3rd pair, apex of 2nd and 3rd joints fuscous. Length, 1¼—2 lines.

12. SABULICOLA, Curt.

Although the characters on the elytra are very variable, the forms which appear to be most common have five black spots and two streaks on each elytron, thus approaching some of the varieties of *D. striatus*, with which, however, it can never be confounded by the difference in the genitalia in both sexes.

A common species on sandy places on the sea coast from July to November.

Greyish-testaceous. *Elytra:* nerves of the two inner ante-apical and two inner apical areas narrowly margined with black; central apical area black. Sometimes, with the exception of the last, the whole of the characters are obsolete.

Head—crown in ordinary types, with characters similar to those on *D. sabulicola*. *Face* brown, lower half with a pale longitudinal central line, and six or seven transverse lines on each side.

Thorax—pronotum greyish-testaceous. *Scutellum* with two black punctures above the transverse channel and generally a brown triangular spot at each basal angle. *Elytra* greyish or whitish; nerves white. *Clavus:* characters almost as in *D. sabulicola*. *Corium:* nerves of the two inner anteapical and two inner apical areas narrowly margined with black; central apical area black, sometimes, with the exception of the last, the whole of the characters are obsolete, or the whole of the areas are suffused with black, leaving the costal and ante-apical area immediately below it *always* pale. In the last case the crown has two longitudinal black lines and the pronotum four. Length, 1¼—1½ line.

13. STRIATUS, Lin.

A somewhat smaller and much more common species than *D. sabulicola*, to which some of the forms bear a great resemblance, but the different general colour, and the want of the white cruciform characters formed by the transverse nerves of the corium of the last named species, will at once point out their distinctness.

On the continent, there is a species described by Fieber under the name of *D. Linnæi*, which might be mistaken for *D. striatus*, and although I have not met with it amongst the number of specimens I have examined, it is worth while to examine all those supposed to represent the insect now described. The posterior margin of the last abdominal segment of the ♀ of *D. Linnæi* is ⌒ shaped, while in *D. striatus* it is very faintly concave.

Yellow, reddish, or brownish-yellow. *Elytra* longer or shorter than the abdomen; areas more or less margined with black; nerves white.

Head—crown down the centre a little longer than the width across the anterior margin of the eyes; on each side of the apex a small brown or black triangular spot, and before the anterior margin of the eyes a transverse, somewhat concave, brown or black band. *Face* brown or black, with 5–6 transverse, fine, whitish lines on each side, slightly thickened internally. *Clypeus* yellow, with one or two brown or black lines down the middle. *Cheeks* and *lorœ* yellow, the latter margined with dark brown.

Elytra longer or shorter than the abdomen, yellow or reddish or brownish-yellow; nerves white; areas more or less margined with black. *Legs* as in *D. Falléni*.

Abdomen: ♂, beneath black, last segment broadly yellowish in the middle; connexivum with a triangular yellow spot on each segment; genital valve black, margin yellow; apex somewhat obtuse; plates black, an irregular patch at the base, and the margin narrowly yellow; hypopygial lobes thickly set with stout brownish hairs; ♀, beneath yellow; 2–3 basal segments black in the middle; posterior margin of the last segment with a slight notch in the centre margined with black. Length, 1¼ line.

14. SOCIALIS, Flor.

As a rule, the brachypterous form is always pale, and with almost only the apical areas margined as in *D. Falleni*, while in the macropterous form all the areas are more or less broadly margined with black, thereby causing the nerves to appear much whiter than usual. *D. onustus*, Fieb., and *quadrivittatus*, Marshall, are both referable here.

Yellowish-brown. *Crown* with a curved black line on each side of the apex, as also a spot nearer to the eyes, and a faint, transverse, broad, slightly curved, brown band in a line with the anterior margin

of the eyes. *Elytra* yellowish-brown; nerves white; all the areas margined with black; anterior margin with two white spots, one at the base, the other at the apex of the first apical area.

Head—crown yellowish-white, length down the centre about equal to the width across the anterior margin of the eyes; on each side of the apex a curved black line, and about midway between its outer extremity and the eyes, a black spot. *Face* black, on each side 5–7 fine transverse yellow lines, those on the frons somewhat thickened at their inner extremity. *Clypeus* yellow, with a broad, brown patch down the middle. *Cheeks* and *lorœ* yellow, the latter margined with brown.

Thorax—pronotum yellowish or slightly ferruginous, palest in front of the transverse channel, at the extremities of which is a more or less distinct oblong dark streak. *Scutellum* yellowish or slightly ferruginous. *Elytra* yellowish-brown, shining, as long as the abdomen; nerves white, stout; all the areas margined with black; base and apex of the 1st apical area on the anterior margin with a white spot; exterior margin of all the apical areas broadly fuscous-black. *Legs* yellow; *thighs:* 1st and 2nd pairs with two black rings; 3rd with a black line along the upper margin, and a broad black streak along the upper and under-sides, not reaching the apex. *Tibiæ* yellow; 1st and 2nd pairs with four or five black spots on the anterior margin; 3rd, broadly black internally; apex narrowly black; spines yellow, set in black punctures. *Tarsi:* 3rd pair black, 1st joint at the base yellow.

Abdomen: ♀, beneath black, last segment yellowish or brownish-yellow, posterior margin brown; centre with a small semi-oval incision, sides concave.

Length, 1¼ line.

15. OCULATUS, J. Sahlb.

The present species bears a great resemblance to the *onustus* form of *D. socialis*, but the areas are more regularly margined, and the posterior margin of the last abdominal segment beneath of the ♀ of an entirely different shape. It was sent to Dr. J. Sahlberg, with some others, and returned by him with the above name attached. A single ♀ in the collection of Mr. Douglas.

Testaceous. *Elytra* as long as the abdomen; nerves for the most part white. *Clavus:* between the suture and the adjoining nerve transversely divided into 5–6 small areas, all of which are more or less margined with black.

Head—crown yellowish-white, about as long down the centre as the breadth across the eyes; on each side of the apex a short brown or black streak, frequently triangular in shape; before the eyes a more or less distinct transverse brown streak frequently divided in the middle, so that the intervening spaces form a white cross. *Face* black, dull, with 4–5 transverse yellow lines on each side, sometimes almost obliterated, in the centre a large irregular yellow spot; apical margin frequently yellow. *Clypeus* black with a yellow margin, or yellow with a more or less broad black streak down the middle. *Cheeks* yellow, margin next the eyes black; *lorœ* yellow, margined with black.

Thorax—pronotum and *scutellum* yellowish-white, the former with from 3–5 more or less distinct whitish longitudinal lines. *Elytra* testaceous, as long as the abdomen; nerves for the most part white. *Clavus:* between the suture and the adjoining nerve transversely divided into 5–6 small areas, all of which are more or less margined with black. *Corium:* central ante-apical area divided transversely by a nerve: upper portion somewhat oval, more or less broadly black, especially along the outer margin; apical areas and those adjoining margined with black, the former very broadly exteriorly; costal area at its apex and the area immediately below it with a black line along the anterior margin. *Legs* black; *thighs:* apex of all the pairs yellow. *Tibiæ* black, or sometimes the 1st pair yellow; 2nd and 3rd at the base yellow, sometimes the anterior margin yellow with black punctures, in which are set the stout yellow spines.

Abdomen: ♂ and ♀, beneath, black, dull; posterior margin of the last abdominal segment of the ♀ with a small square projection in the middle.

Length, 1½—1⅔ line.

16. OCELLARIS, Fall.

The division of the portion of the clavus into small areas, and the always conspicuous dark area in the middle of the corium, render this species easy of detection.

Extremely abundant everywhere.

Brownish or brownish-yellow. *Elytra* longer or shorter than the abdomen, disc commonly with two large irregular dark brown or black patches placed behind each other, and separated by a white transverse nerve.

Head—crown brownish-yellow, somewhat convex, length down the centre about three-quarters of the width across the anterior margin of the eyes; on each side of the apex a small black triangular spot, and more interiorly a second prolonged into a line, terminating at the anterior margin of the eyes; in different individuals these characters are more or less modified. *Face* black, with from 3–5 short, transverse, ferruginous lines on each side. *Clypeus, cheeks,* and *loræ* black.

Thorax—pronotum brown, anteriorly yellowish, and with a more or less distinct, pale, central, longitudinal line. *Scutellum* brownish-yellow. *Elytra* longer or shorter than the abdomen, pale brownish-yellow; nerves fine, white. *Clavus* more or less pale or dark brown, or sometimes blackish; nerves white. *Corium:* anterior margin except the base dark brown or blackish; disc in macropterous forms with two large irregular dark brown or black patches, each composed of 4–5 longitudinal lines of unequal length, and separated by a white transverse nerve; apical areas fuscous. *Legs* black; *thighs:* apex of all the pairs yellow. *Tibiæ:* 1st and 2nd pairs yellowish or brownish; anterior margin of the 2nd, or frequently both, spotted with black; 3rd black, base narrowly yellow; spines brownish-yellow.

Abdomen black; posterior margin of the last abdominal segment of the ♀ beneath, in the centre with a small semi-circular projection, and the sides convex.

Length, 1 line.

17. PULICARIS, Fall.

Easily recognised by its smudgy black-lead appearance, caused by the colour shining through the elytra from the black abdomen, and the two more or less distinct patches on the elytra.

Exceedingly common from June to October.

Pale testaceous. *Elytra* longer than the abdomen, nerves white; in a line with the apex of the clavus a more or less distinct, broad, white, transverse band terminating at the claval suture; disc, almost in the middle with a black spot; anterior margin above and below the white band with a black patch, the lower one always largest.

Head—crown testaceous, convex; anterior margin with three black spots on each side of the centre, one or other of them frequently united; a little more interiorly, two semi-circular black lines, and adjoining the posterior margin of each eye two black spots; frequently these characters are reddish-brown, and more or less obliterated. *Face* black, with or without a yellow central longitudinal line; on each side about four transverse yellow lines; apical margin yellow. *Clypeus* yellow, broadly black down the middle. *Cheeks* brown; *lorœ* yellow, margins black. *Antennæ:* 1st joint white, 2nd black; *setæ* brown.

Thorax—pronotum somewhat greyish-testaceous, with two black spots on each, placed transversely, and in a line with the posterior margin of the eyes. *Scutellum* pale testaceous, with two small black punctures above the transverse channel; basal angles with a red or orange-red triangular spot. *Elytra* longer than the abdomen; nerves white; in a line with the apex of the clavus a more or less distinct, broad, white, transverse band, terminating at the claval suture; disc almost in the middle with a black spot; anterior margin above and below the white band with a black patch, the lower one always largest and conspicuous; apical areas fuscous. *Legs* yellowish; *thighs:* 1st and 2nd pairs at the base broadly black, beyond the middle a narrow black ring, and at the apex generally a black spot; 3rd yellowish, lower margin black; inner side at the apex with a black spot. *Tibiæ* yellowish; 2nd pair at the base with a black spot interiorly; 3rd, down the inner margin black; spines yellowish set in black punctures.

Abdomen black; ♀, beneath; 3rd, 4th, and 5th segments with a yellow triangle on each side; last segment yellow, posterior margin slightly concave.

Length, 1¼ line.

18. ARGUS, Marshall.

Slightly larger, always clearer, and the characters on the elytra more sharply defined than in *D. pulicaris*, from which also it differs in having a white band on the corium and the posterior margin of the last abdominal segment of the ♀ of an entirely different shape. Fieber has described a species (*D. fasciatus*) which must be extremely like the above, and it will be well to examine the markings on the crown, and the shape of the posterior margin of the last segment of the abdomen of females.

Seemingly not uncommon, as I have met with specimens in nearly all the collections I have examined.

Description of the larva, &c., of Botys lancealis.—Since the publication of that interesting paper, "In memoriam Carl von Heyden," in The Entomologists' Annual for 1867, I had cherished the hope of obtaining the larva of *lancealis*, and this hope has at length been fulfilled, thanks to the kindness of Dr. J. H. Wood, of Tarrington, who succeeded in detecting it in Herefordshire, and kindly sent me two young examples on the 13th August, and three more (full-grown) on the 1st September, 1874.

Not having seen any description of this larva, it has occurred to me to give one, together with some account of the behaviour of the few individuals I had in captivity.

Of the first two larvæ I received, one had been accidentally crushed, but its companion arrived in a lively condition, wriggling and leaping, both forwards and backwards equally well, whenever disturbed from its web spun amongst the leaves of the *Eupatorium cannabinum*.

The youngest larvæ was about five-eighths of an inch long, and at this stage of its growth was rather uniform in size, though in other respects showing the characteristics of a *Pyralis;* its pale drab head spotted and freckled with darkish-brown, the back and upper sides of the body bluish-green, the thoracic segments rather yellower-green, a whitish hair-like spiracular line, the belly and legs pale whitish-green; the second segment as shining as the head, and minutely speckled with black, the dorsal vessel faintly showing as a rather darker green pulsating stripe; the segmental folds greenish-white, the tubercular warty eminences, though of the ground colour, yet glistening with a pearly lustre; the rest of the skin at this time generally without gloss, but so thin as to be semi-transparent.

When fresh food was supplied to this larva, it soon spun a new web for its dwelling under the end of a leaf, folding it down, and remaining quiet for some time; afterwards often coming out at intervals to feed on the neighbouring leaves.

On one occasion of changing the food I watched the larva spin another web; it first took up its position on the under-side of a leaf, across the midrib, about an inch from the tip, and began operations by fixing a thread of silk on one side of the leaf, then stretching itself round, it carried over the thread and fixed it on the opposite side, and so it continued regularly from one side to the other, the fore-part of its body at each movement describing a segment of a circle;—occasionally it paused a moment to advance a step, and then began spinning again, and so on until satisfied that it had spun enough; then it changed its position, and laid itself to rest along the midrib of the leaf: this web was more than half as long again as the larvæ itself, and about half-an-inch in width, excepting just at the ends which were a little less, and both open; the silk of which it was spun being rather fine in texture, and whitish. After a short rest the larva crept a little way out of the web, and began nibbling the edge of the leaf it had chosen to reside under; at this moment, in order to have a clearer view, I cautiously ventured to turn aside the tip of another leaf adjacent,—but so timorous was the larva that it sprang instantly backwards into its web, where in alarm it remained for a long time with its length much contracted. In course of a few hours after this it had firmly fastened its leaf to two or three other leaves close by, and I did not disturb it again until the 18th of the month, when I found it had just moulted, and not only increased somewhat it size, but assumed a different dress, together with the usual proportions that characterise the genus. On the 23rd I saw it was full-grown, and took the following description:—

Length seven-eighths of an inch, the body tapering at each end, and thickest in the middle, especially when viewed sideways; the head small and rather flattened, the segments plump and well defined on the back and sides, and more particularly on the belly where they are deeply cut, and very tumid at the setting on of all the legs, especially the ventral ones, which are rather long, slender, and spreading a little at their hooked extremities, the anal pair extending backwards and a little outwards; the anterior legs very well developed. In colour the glossy head is light drab, speckled with dark brown, and having the papillæ tipped with brown; the second segment, also glossy, is green above, with the boundary of a plate defined on either side by a series of four black dots decreasing in size from the front; on the rest of the back a dark green dorsal stripe, which is attenuated a little towards each end, its course relieved on either side by a broad stripe of opaque pearly greyish-white, followed by a broader semi-transparent green stripe, distinct without hardness, margined below by a thread-like opaque whitish line which thickens as it approaches each segmental division; on this line are situated the small circular black spiracles; all beneath, including the belly and legs, have a pale watery tint of greenish; the tubercular warts have each a fine silky hair; the whole skin is tense, shining, and more or less translucent.

On the 25th August this larva ceased to feed, left the plant, and spun a web in a corner at the top of its cage, having by degrees become of a beautiful opaque rose-pink colour on the back, and greenish-flesh colour on the belly, destitute of any line or stripe, the head alone remaining unaltered in colour and markings. By the 31st I found the web completed; it was of triangular shape composed of whitish silk enclosing a space an inch in length; within was a hammock-like cocoon of finer white silk, and in this lay the larva. Its colouring again changed to an uniform flesh tint; and from this time it rested quiescent, without any further change in its appearance, until the last week in April, 1875, when I saw its position was different, and it seemed a little shorter and thicker than before; on the 3rd May I found it had pupated.

This pupa was three-eighths of an inch in length, moderately slender in form, with the wing and antenna cases long, the abdominal tip terminating with four or five minute bristles converging at their extremities, which were entangled in the silk of the cocoon, the old larval skin lying behind them; the colour of the pupa was a very pale brown, with shining surface.

Of the three other full-grown larvæ before mentioned, it will suffice to say that their details were just as I have already described; the variations were simply in the depth of the colouring: one much darker than the others, in which the light stripes of the back were greenish-grey; the other parts proportionally darker: another was much paler, the stripes of the back being ivory-white: their habits also were similar. Two of them reached the roseate stage on the 9th September, the 3rd on the 12th.

One spun its cocoon on the straight upper edge of its cage, against the gauze top, to which it partly adhered; this was exteriorly much of a hammock shape; this larva pupated May 6th, 1875. The two others choose to spin themselves up under two or three leaves, which they securely fastened to the side and bottom of their respective cages, hidden from observation.

The earliest moth to appear was a male on May 29th from the first larva whose progress I have traced; from the second pupa a female emerged on the 31st, and on the 7th June a male: the remaining larva died from mildew attacking it and its leafy hibernaculum.—Wm. Buckler, Emsworth: *January 28th*, 1876.

A supposed new British species of Leucania.—I have to announce the capture of what I hope will turn out to be a new species of *Leucania*. It was taken by myself last autumn near the river Bure, between Yarmouth and Horning, brought home and set by my daughter. My attention was not drawn to it for two or three months, when I noticed its singular appearance, but professional engagements, which prevent my attending to entomology during the winter months, compelled me to put it on one side with several other doubtful moths till a month ago, when a friend noticed its peculiarity, and we went over the late Mr. Doubleday's collection. There we found nothing, either among the British or European species, to compare with my moth, the nearest approach being *L. Loreyi*. When its unique character is more fully determined, I will forward a detailed description.—W. Battershell Gill, M.D., 9, Cambridge Terrace, Regent's Park, N.W.

Obituary.

Thomas Wilkinson. This well-known entomologist died at his residence at Scarborough (we believe from the rupture of a blood-vessel) on the 13th April, at the age of 58. Although an uneducated man, and of humble origin, he made for himself a conspicuous position in the annals of British entomology; and those among our readers who can carry their memory back to the days of the "Intelligencer" and the "Manual of British Butterflies and Moths," will be able to appreciate the force of this remark. They will remember with what ardour he entered into the investigation of the life-history of the *Micro-Lepidoptera*, and the extraordinary number of valuable discoveries made by him in this branch of entomology, his natural quickness of perception enabling him to follow up the slightest clue, and he rarely failed to trace out the whole history of any species that occurred in his neighbourhood. In this, he was aided by a strong constitution and great powers of endurance, which enabled him to make long and arduous excursions under the fatigues of which most men would have soon succumbed. Having, to a considerable extent, exhausted the subject of *Micro-Lepidoptera* in the vicinity of Scarborough, and his circumstances not permitting of the exploration of new fields in this branch, he latterly turned his attention to *Coleoptera* and *Hemiptera*, and in both made important captures, including additions to our Fauna and to science in the latter Order. The care and skill with which his specimens were prepared are patent to all who have seen his collections; his British *Micro-Lepidoptera* are hardly to be surpassed either for completeness or condition. Those who knew him personally, saw in him a quiet unassuming investigator of Nature's secrets, utterly disinterested in every thing he undertook, and characteristically free from any of the petty jealousies that are too frequent among local naturalists.

Entomological Society of London: *5th April*, 1876.—Professor Westwood, President, in the Chair.

Messrs. J. W. Douglas, E. C. Rye, F.Z.S., Charles Fenn, George Lewis, J.

Dunning Kay, and W. C. Copperthwaite, were elected Ordinary Members; and Mr. E. A. Bower, Jun., was elected a Subscriber.

Mr. F. Bond exhibited an example of *Xylina lambda* taken near Erith in September last by Mr. W. Marshall, being the fifth known instance of the occurrence of the species in Britain. Also *Ebulea stachydalis*, taken by himself at Kingsbury, Middlesex, in June, 1862.

Mr. Champion exhibited specimens of *Ægialia rufa* taken by Mr. Sidebotham near Southport: and he brought examples of *Phytobius sulcicollis* for distribution.

The President made some observations respecting the habits of the common gnat in continuation of his remarks at the meeting for November 4th, 1872 (*vide* Ent. M. M., ix. p. 167). Large numbers of females had again appeared in his house at Oxford during the first warm days of spring, and he suspected that they had hibernated in the house. They had [illegible] their usual practices, and some of these [illegible] full of blood. He also remarked that Dr. Leconte's valuable collection of *Coleoptera* had been presented to the University at Cambridge, Massachusetts.

Sir S. S. Saunders exhibited living examples of *Stylops Kirbii* found a day or two previously at Hampstead, three having been taken on the wing, in the forenoon. He had found eighteen males in all: one *Andrena* contained three undeveloped males. Mr. Enock followed up this exhibition by an account of his own captures of male *Stylops* at the same place, and nearly at the same time. He had captured ten on the wing: one *Andrena* contained four individuals. Males were developed from a living *Andrena* in a pill box during the meeting.

The Rev. A. E. Eaton announced that he had in preparation a Supplement to his "Monograph on the Ephemeridæ," chiefly from the materials in the collections of Mr. McLachlan and Mr. H. Albarda. He requested help from any one possessing insects of this family. It appeared probable that in some genera (*ex. gr. Campsurus*) the legs were shed with the sub-imaginal pellicle, thus accounting for the nearly legless condition of the imagos.

Mr. Smith made some remarks on the distribution of some genera of Hymenopterous insects from New Zealand, according to a collection placed in his hands by Mr. C. M. Wakefield, in which he was followed by Mr. McLachlan, who remarked on the gradual extinction of the endemic Fauna of New Zealand, although introduced forms throve wonderfully.

The Rev. R. P. Murray stated that he was preparing a list of Japanese Butterflies, and would be grateful for information, or the loan of specimens, in connection therewith.

Mr. McLachlan exhibited a series of *Anomalopteryx Chauviniana*, Stein, from Silesia, given to him by the discoverer of the species—Fraulein Marie von Chauvin of Freiburg. This singular Trichopterous insect pertained to the family *Limnophilidæ*, and was remarkable for the lanceolate anterior, and abbreviated posterior wings of the ♂, those of the ♀ being normal, excepting that the posterior wings were smaller than usual. Also apterous females of *Acentropus niveus* received from Mr. Ritsema of Leyden (*vide ante* p. 257). Further, a microscopic slide with a full-grown female example of *Phylloxera vastatrix* of the root form. This he had recently obtained, with many others, from a vinery near London, which was terribly infested with the insect.

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